ANNALS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

VOLUME 26 JUNE 1960 No. 6

Depending on the anatomical region . . .

Depending on the technique to be employed . . .

Depending on the radiological requirements . . .

You will choose

ILFORD RED SEAL · STANDARD · ILFEX

Get to know these ILFORD X-ray films

ILFORD X-ray films are made to specifications drawn up by technicians who are in constant touch with *your daily problems.*

ILFORD LIMITED · ILFORD · ESSEX

TRAINING MADE EASIER FOR THE COLOSTOMY PATIENT

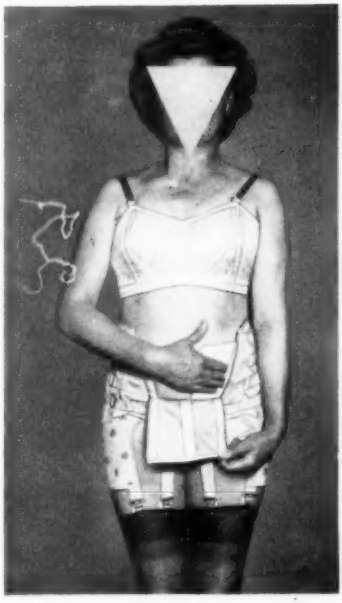
Training is the key to normal living for the colostomy patient. ★SPENCER'S new colostomy support — *individually designed, cut, and made* for each patient— makes training easier, because:

★ Abdominal section opens instantly by means of zippers—facilitating the change of pads

★ This section is lined with moisture-proof material—easily cleaned—protects outer clothing

★ Spencer's co-relation of abdominal and back support improves posture, body mechanics

★ Cosmetic results are appreciated by both male and female patients



★ *The Care of the Permanent Colostomy, Can. Med. Assoc. Jr. 60 : 71-72 (Jan.) 1949.*

For further information write to:

—— SPENCER (BANBURY) LTD. ——

Consulting Manufacturers of

Surgical and Orthopaedic Supports

Spencer House, Banbury, Oxon.

Tel. 2265

Branch Offices:

LONDON: 2, South Audley Street, W.1 ... ... Tel. GROsvenor 4292
LIVERPOOL: 79, Church Street, 1 ... ... Tel. ROYal 4021
LEEDS: Victoria Buildings, Park Cross Street, 1 (opposite Town Hall Steps) Tel. Leeds 3-3082
BRISTOL: 18, Whiteladies Road (opposite Broadcasting House), Bristol, 8. Tel. Bristol 36410
MANCHESTER: Room 9, 2nd Floor, Mitton Hall, 244 Deansgate, Manchester 3 Tel. Blackfriars 7822
GLASGOW: 86, St. Vincent Street, C.2 ... ... Tel. CENtral 3232
EDINBURGH: 30a, George Street, 2 ... ... Tel. CALedonian 6162

Appliances supplied under the National Health Service through Subsidiary Company Spencer (Surgical Supplies) Ltd.

Trained Spencer Retailer-Fitters resident throughout the Kingdom. Name and address of nearest Fitter supplied on request.

Copyright

Depending on the anatomical region . . .

Depending on the technique to be employed . . .

Depending on the radiological requirements . . .

You will choose

ILFORD RED SEAL · STANDARD · ILFEX

Get to know these ILFORD X-ray films

ILFORD X-ray films are made to specifications drawn up by technicians who are in constant touch with *your daily problems.*

ILFORD LIMITED · ILFORD · ESSEX

TRAINING MADE EASIER FOR THE COLOSTOMY PATIENT

Training is the key to normal living for the colostomy patient. ★SPENCER'S new colostomy support — *individually designed, cut, and made* for each patient— makes training easier, because:

★ Abdominal section opens instantly by means of zippers—facilitating the change of pads

★ This section is lined with moisture-proof material—easily cleaned—protects outer clothing

★ Spencer's co-relation of abdominal and back support improves posture, body mechanics

★ Cosmetic results are appreciated by both male and female patients

★ *The Care of the Permanent Colostomy, Can. Med. Assoc. Jr. 60 : 71-72 (Jan.) 1949.*

For further information write to:

SPENCER (BANBURY) LTD.

Consulting Manufacturers of

Surgical and Orthopaedic Supports

Spencer House, Banbury, Oxon.

Tel. 2265

Branch Offices:

LONDON: 2, South Audley Street, W.1 ... ... Tel. GROsvenor 4292
LIVERPOOL: 79, Church Street, 1 ... ... Tel. ROYal 4021
LEEDS: Victoria Buildings, Park Cross Street, 1 (opposite Town Hall Steps) Tel. Leeds 3-3082
BRISTOL: 18, Whiteladies Road (opposite Broadcasting House), Bristol, 8. Tel. Bristol 36410
MANCHESTER: Room 9, 2nd Floor, Mitton Hall, 244 Deansgate, Manchester 3 Tel. Blackfriars 7822
GLASGOW: 86, St. Vincent Street, C.2 ... ... Tel. CENtral 3232
EDINBURGH: 30a, George Street, 2 ... ... Tel. CALedonian 6162

Appliances supplied under the National Health Service through Subsidiary Company Spencer (Surgical Supplies) Ltd.

Trained Spencer Retailer-Fitters resident throughout the Kingdom. Name and address of nearest Fitter supplied on request.

Copyright

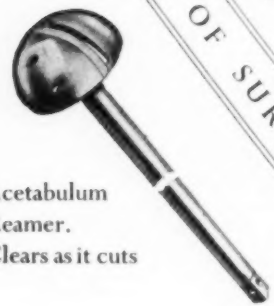
PRYOR & HOWARD LTD.

Office and Works: WILLOW LANE, MITCHAM, SURREY

TELEPHONE NO.: MITCHAM 1177-8

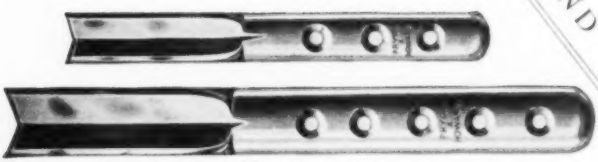
MAKERS OF SURGICAL INSTRUMENTS AND APPLIANCES

Modified
Jewett Brace
with
self-aligning plates



Acetabulum
Reamer.
Clears as it cuts

Polythene and
Plastic
appliances



L. C. Wood V-Blade Plate

Write for Leaflets and Catalogues

LONDON FITTING ROOMS: **49, WELBECK STREET, W.1.** *Telephone No.: WEL 2782*

BRANCHES: **LEEDS · BOURNEMOUTH · BRISTOL**

VAGOTOMY TEST SET

This apparatus is for testing for complete nerve section during vagotomy, as designed and made for Mr. Harold Burge, F.R.C.S. It may also be used to demonstrate and localise individual nerve trunks.

THE SET CONSISTS OF:—

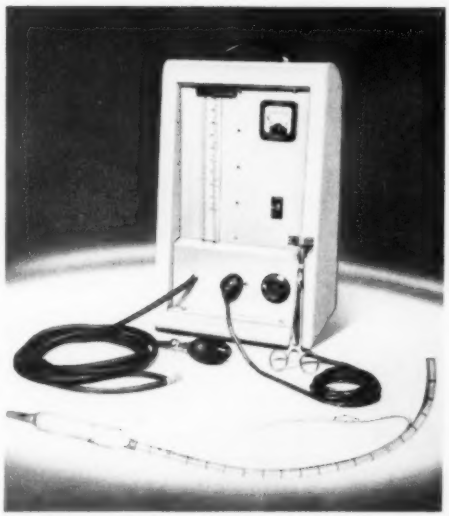
A small transistorised pulse generator the output of which is fed to an electrode placed around the oesophagus.

The "Burge" vagotomy tube. This cuffed tube seals the lower oesophagus and allows the intragastric pressure to be recorded.

Two water manometer tubes recording intragastric pressure.

The electrode assembly and leads.

A pair of double bellows and release valve.



- *Completely portable.*
- *Transistorised, battery operated.*
- *Batteries easily changed through the door in the back of the case.*
- *Pressed and welded sheet steel case measuring 18" × 10" × 8¼".*
- *Finished in cream enamel.*
- *Accessories may be carried in case.*
- *Unbreakable Manometer Tubes made of rigid plastic.*
- *All controls recessed to minimise risk of damage.*

WINSTON
ELECTRONICS LIMITED

GOVETT AVENUE, SHEPPERTON, MIDDX.

Telephone : Walton-on-Thames 26321/5
Telegrams : Winston, Shepperton

YOU CAN'T FORETELL THE FUTURE

. . . BUT YOU CAN PREPARE FOR IT

This Society specialises in insurance for the Medical and Dental Professions.

Non Cancellable With Profit

SICKNESS AND ACCIDENT INSURANCE.

LIFE ASSURANCE.

PERSONAL PENSION POLICIES.

When you are buying a car why not ask for details of the Hire Purchase Scheme of our subsidiary company—the Medical Sickness Finance Corporation of 7 Cavendish Square, London, W.1. Telephone Museum 9348.

Write to us for particulars, mentioning this advertisement.

MEDICAL SICKNESS ANNUITY AND LIFE ASSURANCE SOCIETY LIMITED

3 CAVENDISH SQUARE, LONDON, W.1.

Telephone Langham 0341

He'll be "Double-gloved" with

pHisoHex

UNIQUE ANTIBACTERIAL SKIN CLEANSER

The powerful cleansing action and unique antibacterial effect of pHisoHex is achieved without impairing the natural antibacterial function of a healthy intact skin.

After washing with pHisoHex, an emollient, lasting film of hexachlorophene remains on the skin of frequent users so that a condition approaching skin sterility is present at the beginning and end of the operation.

pHisoHex is non-alkaline, soothing to the skin and does not cause allergy. The pre-operative pHisoHex wash, using a brush for finger nails only, avoids the bacterial danger of skin abrasions and their discomfort. Over 80 publications describe the use of this new antibacterial skin cleanser and this experience has been amply supported by the reports of British workers[1].

[1] "pHisoHex and Safer Surgery"—B.M.J., ii; 606, Oct. 3rd, 1959.

To give you all the facts about pHisoHex, a new colour film "**A Show of Hands**" is now being shown to invited audiences. An illustrated booklet is also available on request.

150 ml. and 4 litre plastic containers.

pHisoHex contains a new detergent, alkylphenoxypolyethersulphonate, and colloidal hexachlorophene combined in a non-sensitising emollient emulsion of the same pH as the skin.

BAYER PRODUCTS LTD., Kingston-upon-Thames, Surrey.

Associated Exporting Company: WINTHROP PRODUCTS LTD.

'pHisoHex' is a registered trademark

The operative word.....

DEXTRAVEN

Trade Mark

A case for transfusion? Then the operative word is Dextraven—and Dextraven *first*.

Dextraven maintains the blood volume until the normal physiological mechanisms make appropriate compensation. A safe colloid solution, Dextraven can be used *at once* in the prevention of shock, or to treat established shock. If more than two bottles are required in treating hypovolaemia due to blood loss, the patient should be given red cells.

WHY DEXTRAVEN?

. . . rather than BLOOD

Dextraven requires no cross-matching, can be stored for up to five years, and is perfectly sterile and non-toxic. Blood is indicated only where there is a definite need for an exogenous supply of red cells. Blood is saved for the occasions when only blood will suffice.

. . . rather than SALINE

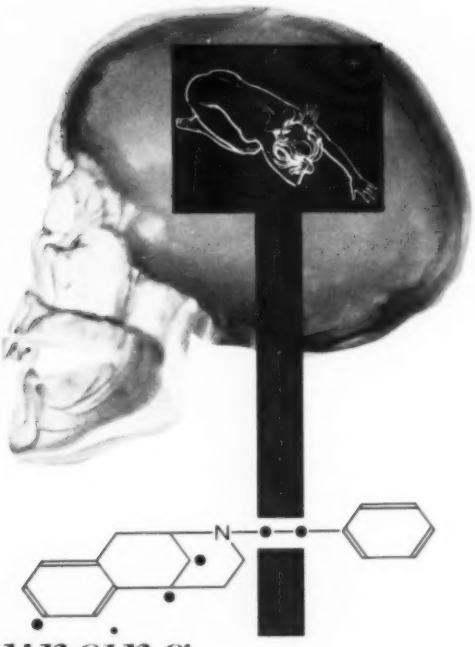
Dextraven is a true blood volume restorer: some 60-70 per cent remains in the circulation for the first critical 24 hours.

. . . rather than PLASMA

Dextraven restores and maintains blood volume with equal effectiveness but without the definite risks of transmitting viral hepatitis, inducing antibody formation, and causing potassium overload.

Safe, quick to use, always at hand—
DEXTRAVEN—first in every case

BENGER BENGER LABORATORIES LIMITED · HOLMES CHAPEL · CHESHIRE



announcing

NARPHEN

TRADE MARK

BRAND
PHENAZOCINE (NIH 7519)

new synthetic analgesic more powerful than morphine

NARPHEN is chemically 2'-hydroxy-5,9-dimethyl-2-phenethyl-6,7-benzomorphan; its 'Approved Name' is phenazocine.

NARPHEN is a quick-acting and potent analgesic that is more powerful than morphine and pethidine. Early reports show that Narphen is from 3 to 10 times more effective an analgesic than morphine.

NARPHEN produces less respiratory depression, less hypotension, and less nausea and vomiting than morphine.

NARPHEN appears to produce addiction more slowly than morphine and the effects of withdrawal are less intense.

NARPHEN is available in boxes of 10 and 100 ampoules each containing 2 mg. per 1 ml. ampoule.

NARPHEN *is subject to the Dangerous Drugs Regulations*

Smith & Nephew *Pharmaceuticals* Limited
WELWYN GARDEN CITY · HERTFORDSHIRE

ANNALS
OF THE
ROYAL COLLEGE OF SURGEONS OF ENGLAND

Editor:
SIR CECIL WAKELEY, BT., K.B.E., C.B.,
LL.D., M.Ch., D.Sc., F.R.C.S., F.R.S.E., F.F.R., F.D.S.R.C.S.

Volume 26 JUNE 1960 No. 6

Published by
THE ROYAL COLLEGE OF SURGEONS OF ENGLAND
LINCOLN'S INN FIELDS LONDON, W.C.2

Annual Subscription - £2 post free
Single copies - - 3s. 6d. post free

ANNALS OF
THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

CONTENTS

JUNE 1960

		Page
Some Edinburgh Pioneers in Orthopaedic Surgery	Sir Walter Mercer	339
Sir Arthur Sims Commonwealth Travelling Professorships		361
The Anatomy and the Pathology of Multiple Hydatid Cysts in the Thorax	N. R. Barrett	362
Faculty of Anaesthetists		379
The Prevention and Treatment of Accidents	Sir Harry Platt	380
International Federation of Surgical Colleges		386
In Memoriam: Mr. Edward L. Lumley		388
Imperial Cancer Research Fund		389
Faculty of Dental Surgery		391
Bernard Johnson Memorial Fund		391
Court of Patrons		392
Appointment of Fellows and Members to Consultant Posts		394
Proceedings of the Council in May		395
Donations		396
"Observables" at The Royal College of Surgeons ..		397
Hospital Medical Staffs Defence Trust		398
Recent Overseas Visitors to the College		399
Diary for June		400
Diary for July		400
Index to Volume 26		401

Telegrams: Collsurg, Holb, London
Cables: Collsurg, London Telephone: Holborn 3474

SOME EDINBURGH PIONEERS IN ORTHOPAEDIC SURGERY

Robert Jones Lecture delivered at the Royal College of Surgeons of England

on

14th January 1960

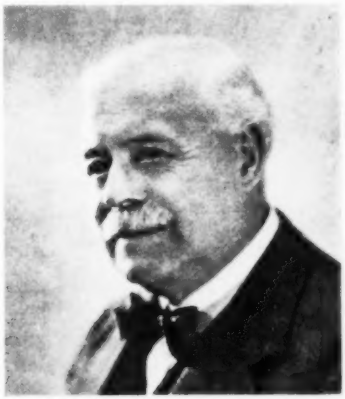
by

Sir Walter Mercer, F.R.S. Ed., F.R.C.S. Ed., Hon. F.R.C.S.

Emeritus Professor of Orthopaedic Surgery, University of Edinburgh

THIS AFTERNOON WE are met together to pay a tribute to one of the great men—indeed, the greatest—in orthopaedic surgery—Sir Robert Jones. It is a very special privilege and honour that I am chosen to speak on your behalf.

It was a memorable day for me when, in 1918, I first met Sir Robert when he paid a consultative visit to the Edinburgh War Hospital, on the



Sir Robert Jones (1857–1933)

staff of which I held an appointment. In the course of his visit he had a look at me and gave me advice about my crippled hand. His kindly interest in someone very junior was typical of so great a man. He came then with his friend, Harold Stiles, and they were just like a couple of schoolboys—so free from pomposity and so full of fun. In the mess afterwards they amused us tremendously with their stories and their byplay. It is said that in his after years solemn persons were not a little disturbed by the great enjoyment Sir Robert took in laughing at himself and chaffing even the most solemn of his contemporaries, and, though Stiles was no solemn John, he was there the butt of a lot of chaffing.

It was interesting, in looking up the records in the Edinburgh College of Surgeons, to find that after taking his M.R.C.P. in England in 1878, Sir Robert later took his Triple Qualification Licence in Edinburgh, and in 1889 his Fellowship of the Edinburgh College, and this particular College on the advice of his uncle, H. O. Thomas, who, of course, was an old student of the University of Edinburgh. In his application he described himself as—Robert Jones, M.R.C.P.Eng., 1878, L.R.C.P. Edinburgh, 1884, Senior Assistant Surgeon, Stanley Hospital, and Port Sanitary Officer for the Government of the United States. He was proposed by John Sibley Hicks. Hicks was medical officer on liners between Liverpool and America for a time and then for 40 years was in practice in Erskine Street, in Liverpool. He was Vice-President of both the Liverpool Field Naturalists Club and the Liverpool Literary and Philosophical Club.

It is not difficult, therefore, to trace the relationship between Sir Robert and Hicks since they must have met in their work on American ships, and in any case Hicks was a member of the Literary Society of which Sir Robert, writing in 1920, said, " Some thirty years ago three or four of us founded a little society in Liverpool which is now called the Liverpool Medico-Literary Society."

Jones's application for Fellowship was seconded by J. Halliday Croom, who later became the distinguished Professor of Obstetrics of Edinburgh University, Sir Halliday Croom. The Croom family tell me that the only possible connection with Sir Halliday Croom is that the latter spent all his vacations in the Lake District and no doubt met Sir Robert there.

In 1909 the Royal College of Surgeons of Edinburgh awarded him the Liston Victoria Jubilee prize for the greatest benefit done to practical surgery by any Fellow during the preceding quadrennial period. " Mr. Robert Jones," it was stated, " is one of the greatest living surgeons, and the advances he has made in orthopaedic surgery in the past few years have been very great."

I saw him frequently after my first meeting and came, like all his disciples, to love the man. From my contacts with him, which, of course, were never very close, I was always impressed with his great energy and industry; his capacity for affection; and his power of making others love him.

His genius ranked him with the great observers of nature—wholesome, finely poised, of simple living and high thinking.

The faithful study of mankind seemed to lead to a certain calm happiness and contentment. The eagerness and joy of observation, the joy of discovering the causes of things, seemed to transcend all else, be the quest within the closed wall of the dissecting room or in the operating theatre.

In studying this great life, while we must admire his genius and all he accomplished, let us dwell even longer on the beauty and strength of his character; the simplicity of his whole nature; the humbleness of this great man.

If one attempts further to analyse the factors which specially contributed to his greatness one might think in the first place of an intellect of quite exceptional calibre. Perhaps he had not the imaginative creative genius of Lister, nor yet the broad culture and philosophic genius of Osler, but only in the sense that he was overwhelmingly a man of action, a rationalist rather than a theorist.

The second factor in Sir Robert's success was that complex quality, as difficult to define as is charm, which we call personality and of which in this instance the chief components were an intense vitality and an ardent enthusiasm. He left a most vivid and lasting impression on his pupils. He had an animation and an enthusiasm which no amount of fatigue seemed able to stale, and it was without doubt these qualities which made him so supremely successful in the sick room. As well as his knowledge, his patients knew that to all, rich and poor, he would bring with gentle hands and a tender heart the best that was known of our art.

Another factor in Sir Robert's success, and perhaps the most important, was his capacity for intense concentration and unremitting hard work. This was the solid foundation on which the brilliant superstructure was built and without which, despite exceptional gifts of intellect and personality, his achievement would not have been possible.

His interest in his vocation amounted to an all-absorbing passion so that it seemed to come to him naturally " to scorn delights and live laborious days ".

No one did more than he to establish orthopaedic surgery as a science as well as an art, but the debt we owe him is to be measured not only by his contribution to our knowledge but also, and even more, by the example he gave us.

All of us in Edinburgh have a deep sense of pride that Sir Robert chose to take his Fellowship at the Edinburgh College. In thus associating himself with Edinburgh he joined there a notable group of pioneers in orthopaedic surgery and, indeed, it may well be that the traditions of these orthopaedic pioneers may have been the reason why H. O. Thomas sent him to Edinburgh for the higher degree. To some of those men I now propose briefly to refer.

We are apt to get into the habit of assuming that most of the achievements of surgery of to-day are products of this century, or even the last twenty years. It is a salutary corrective to this impression or assumption

to glance back for a little to the history of surgery in the past. It is not its earlier primitiveness, nor yet its extremely limited scope and achievement in earlier times, that surprises us, but rather the extraordinary state of development, especially on the technical side, to which it had attained many centuries ago.

As far back as 360 B.C. Hippocrates made use of counter-irritation, used the actual cautery, and employed manipulation in the treatment of fractures; Celsus (A.D. 17) performed amputation and was the first to ligate arteries in the treatment of haemorrhage. Galen (A.D. 150) developed the art of bandaging, described and used complicated machinery for the treatment of fractures. Evidences of this kind might be multiplied indefinitely.

From the earliest days orthopaedic surgery has been included in the province of the general surgeon, and so the development of the specialty of orthopaedics can be traced through the history of surgery as a whole. It is only since the first World War that we have seen the evolution of the specialist orthopaedic surgeon in this country, and undoubtedly the stimulus of war was an important influence in this direction.

The history of surgery in Scotland, and of orthopaedic surgery, has been greatly influenced by the varying conditions of the country during the last few centuries. It may be interesting, therefore, to consider for a moment the beginnings of a regular system for the care of the sick and hurt, and to recall some of the great men of the past whose labours, often in difficult circumstances and unsettled times, have laid the foundations of this branch of surgery as we know it to-day. In the earlier centuries the healing art had been in a most primitive state; its knowledge the most meagre; its practice the most crude; and its methods the most empirical.

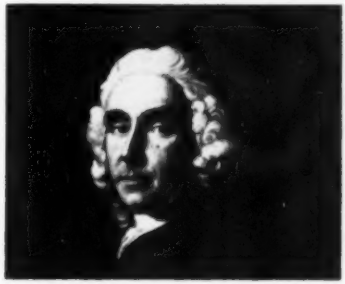
Conditions in Scotland during the Renaissance and the 17th century were not such as to encourage the development of surgery. About 1600 the entire population of Scotland was about 250,000; it may have been less. The population of Edinburgh at that time has been estimated as 9,000, and of Glasgow as about half that number. Our forefathers of these days were not town dwellers: they lived in scattered and scantily populated villages and forced a bare livelihood from the soil.

The times were terrible in this country. In Greyfriars Churchyard in Edinburgh the Covenanters signed the Solemn League and Covenant with their blood, and men by thousands died for the faith that was in them. In 1650 the great Marquis of Montrose met his death on a great gallows erected close by the Mercat Cross in the Royal Mile. After the Union of 1707, the city grew, but men still were fretful. At times mob law prevailed and Captain Porteous of the City Guard was hurried to the Grassmarket and hanged from a pole. These Edinburgh mobs were said to be

the fiercest fighters in Europe. Bonnie Prince Charlie held his Court in Holyrood in 1745, and, with the last of the Stuarts, law and order began to assert itself. It was in such times and in such a cradle, in a Scotland convalescent from a century of blood, that orthopaedic surgery was born.

The most important step towards reforming surgery and founding a Medical School was taken in 1720 with the appointment of Alexander Monro, better known as Monro *primus*, at the age of 22, as Professor of Anatomy in Edinburgh at the princely salary of £15 per annum. Under his brilliant teaching, and fired by his enthusiasm, his class, at first numbering 57, rose to 400, and soon from England and Ireland young men were attracted who had hitherto thronged to Holland.

Other professors and teachers were appointed at the same time and there was formed a Medical School which was to achieve a European reputation



Alexander Monro (*primus*) (1697–1767)

for the University, and to change a craft into an art, and empiricism into the semblance of a science. It was Monro *primus* who, in 1738, made Edinburgh's first notable contribution to orthopaedic surgery.

During the 18th century, interest in orthopaedic problems was widespread. In every medical community individuals were devoting their energies particularly to the treatment of spinal deformities and knee conditions. Most disabilities involving the knee joint were considered by both the profession and the laity to be exclusively within the domain of the unqualified bone-setter. To use the parlance of the day, the "joint was out" and the treatment by the bone-setter ostensibly resolved itself into throwing it back into its proper relationship.

Although loose bodies in the knee had been noted by Paré in the 16th century, the first real description of them and of their origin from the cartilage of the articulating surfaces of the knee was given, appropriately enough, by this anatomist—this famous Alexander Monro. He was

born in 1697, and as a young man he was sent to London to study under the famous Cheselden, and later to visit the Medical School in Paris, and to work with the great Boerhaave at Leyden.

He later published his *Anatomy of the Human Bones*, which went through eight editions in his lifetime, the later ones including a " Treatise on Nerves ". It was translated into most European languages and earned a reputation for Monro which did much to increase the fame of the new Faculty of Medicine in Edinburgh. He amply fulfilled the highest hopes and is now known as the Father of the Edinburgh School.

Monro gave up systematic lecturing in 1759 and confined himself to giving clinical instruction with Drs. Cullen and Whytt, both of whom deserve mention in these remarks, for Cullen, a pupil of Monro, and a holder in his lifetime of Chairs in both Glasgow and Edinburgh, was the first in the country to give clinical lectures in a hospital, and the first ever to lecture in the vernacular instead of in Latin.

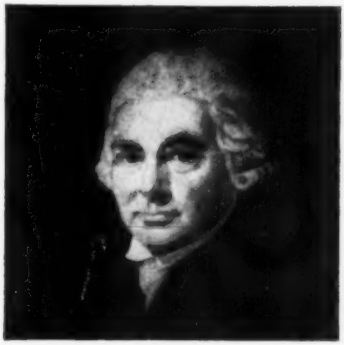
Robert Whytt had by this time become a bright luminary in the rising University and, as one of the most brilliant of the early Edinburgh professors, left his mark on physiological science. He was appointed Professor of the Theory of Medicine in 1747, and four years later published his book, *An Essay on the Vital and other Involuntary Movements of Animals*, which attracted the attention of physiologists throughout Europe.

Whytt made the important discovery that distinct segments of the spinal cord controlled the reflex arcs of specific areas, and that the continuity of the entire cord was not essential to the reflex action of any given muscle group. He was thus the first to localize the seat of reflex action in the spinal cord and to show that it was independent of the brain. Whytt was the first to give a clear description of tuberculous meningitis or, as he called it, " Dropsy of the Brain ". In a short article of 23 pages he described this disease according to three stages, and even at the present day there is little to add to his description from the clinical aspect.

Alexander Monro *primus* was succeeded in 1758 by his son, Alexander Monro *secundus*, who was even more brilliant than his distinguished father. He was a clear and eloquent lecturer and, like his father, spoke without notes. Among his discoveries was the interventricular Foramina of Monro, familiar to every student of anatomy and concerned with the circulation of the cerebro-spinal fluid. An even more important work was his classical study on all the bursae mucosae of the human body. Although some of these had already been described—those of the ankle by Winslow and the olecranon by Peter Camper—this was the first complete description. He also published some important work on the lymphatics.

It was said that his father was obliged to achieve greatness, but Secundus was born great. It is often unfortunate to be the son of a distinguished father, yet Monro held his place intellectually and socially among the great men of his period.

About this time public service of a high character was rendered by Sir John Pringle, who is regarded as the founder of modern military surgery. He was born in Stichill, in Roxburghshire, and studied in Edinburgh and Leyden. After graduating at the latter University in 1730, he returned to settle in Edinburgh. His settling, however, must have been disturbed, for though appointed Professor of Moral Philosophy and combining this with the practice of surgery—in both of which he was eminent—he acted as



Alexander Monro (*secundus*) (1733–1817)

surgeon to the armies on the Continent in the mid-century wars. It was about the time of the battle of Dettingen (1743) that he made the historic suggestion to the Earl of Stair, to whom he acted as military surgeon, that the military hospitals of both the French and the English sides should be regarded as neutral and immune from attack, thus making the first suggestion which led eventually to the formation of the Red Cross Society. Pringle says: " But the Earl of Stair, my late illustrious patron . . . proposed to the Duke of Noailles, of whose humanity he was well assured, that the hospitals on both sides should be considered as sanctuaries for the sick, and be mutually protected. This was readily agreed to by the French General, who took the first opportunity to show a particular regard for this agreement. . . . This agreement was strictly observed on both sides all that campaign, and although it has been since neglected, yet we may hope that on future occasions the contending parties will make it a precedent."

This arrangement, which was rigidly observed, remained in force and led eventually to the Red Cross Organization in warfare being put on an absolute basis through the efforts of Henri Dunant, a Swiss banker, in the Geneva Convention 121 years later.

Pringle was a pioneer of the antiseptic idea, and in his paper *Experiments upon Septic and Antiseptic Substances*, read before the Royal Society in 1750, the word " Antiseptic " is used for the first time in history.

In 1766, at the age of 17, Benjamin Bell, a Dumfries boy, commenced his career as a student of medicine in Edinburgh and came, consequently, under the influence of Monro *primus* and other illustrious members of the Faculty at that time. In writing to his father he said, " To be sure Medicine is taught in Edinburgh in greater perfection than in any other part of Europe," but, in spite of that opinion, and on the advice of Monro, he spent some years also in the great surgical schools of Paris and London.

His earlier writings show that even at this time he must have had at the back of his mind ideas about anaesthesia, for a chapter in Volume Six of his *System of Surgery* is devoted to the consideration " of preventing or diminishing pain in chirurgical operations ". He begins: " To be able to alleviate the misery of those who are obliged to submit to dangerous operations must afford the highest gratification to every practitioner, and as pain is the most dreadful part of every operation it necessarily demands our most serious attention." His suggestion that sensibility and pain might be diminished by compression of the nerves supplying the part to be operated on can be regarded as the first attempt at regional anaesthesia. An instrument for this purpose is depicted in his *System*, published in 1783, and though his methods may have been ineffective, he was nevertheless one of the first to emphasize the importance of lessening pain, and though his attempts to do so may seem crude nowadays, they mark a stage in the evolution of anaesthesia.

His views on the rationale and practice of what is now referred to as massage in the treatment of stiff joints following inflammatory and traumatic conditions were well in advance of those of his own times, and not far behind those of our own. Instructions now sent to the physiotherapy department for the treatment of our patients are much less explicit than were those of Benjamin Bell. He, indeed, was a pioneer of physiotherapy.

The great work on surgical anatomy of John Bell (1765–1820) exerted a powerful influence upon the surgery of his time and he was, with Desault and John Hunter, a founder of the modern surgery of the vascular system. He himself had tied the common carotid artery and the internal iliac, and was the first to ligate the gluteal artery.

After spending some time amongst the wounded men of Lord Duncan's Fleet after the battle of Camperdown, he wrote his treatise on *Gunshot*

Wounds, which contains evidences of much careful observation and sound deduction. We in our day have had to re-learn much that was known to John Bell and had been forgotten. Bell deserves credit for his investigation into the doctrine of inosculating arteries, whereby many limbs were saved from amputation. He believed that those vessels were sufficient to maintain the blood supply, even though the main vessel was ligated proximally. He further advised the approximation of wound surfaces so closely and evenly in contact that they might adhere to each other. This was quite the reverse of the usual procedure, where the skin and deeper layers were dressed as separate sores till the twelfth day with, as Bell says, a rudeness and ignorance quite unparalleled. He was, therefore, the first to attempt to obtain the primary union that is the usual achievement to-day.

John Bell also described an early but unsuccessful experiment in what would now be called aneurysmorrhaphy, where he opened an aneurysm, hooked out the clot, and stitched the opening in the main vessel. The operation was apparently successful, but the patient had a haemorrhage, no doubt from sepsis, on the twelfth day and died. He believed, as so many of us do to-day, that operations usurp an undue importance in medical education. " Operations," he said, " have come at last to represent, as it were, the whole science, and the surgeon, far from being valued according to his sense, abilities, and general knowledge, is esteemed excellent only in proportion as he operates with skill "—? and speed. How right he was in his objections to this attitude, and how modern, is proved by the orthopaedic outlook to-day.

The first incumbent of the Chair of Surgery in the University of Edinburgh, founded in 1803 by George III, was James Russell (1755–1836), who was already the President of the Edinburgh College. We owe to him some important contributions in orthopaedic surgery.

It is a curious fact that when he was appointed to the Chair he ceased to be a practising surgeon at the Infirmary. Having thus no beds, he wandered about at his own sweet will, and lectured on the cases of the other surgeons. The position must have been a delicate one since criticism would cause trouble and mistakes would have to be ignored. Although Russell is stated to have skated successfully over this thin ice, it is not surprising that a contemporary writer tells us that while Russell lectured on the cases of the other surgeons, making remarks on their treatment, they, especially Mr. Liston, made remarks on him.

Russell, at the age of 39, wrote a practical essay on a certain disease of bones termed " necrosis "—what we now call osteomyelitis—and this constitutes the first attempt to give a complete and detailed description of a common surgical affection of the time. It has the merit of being original,

but it brings out the fact that though the condition was known to Albukasim, who flourished in Arabia in the 11th century, it was not till 600 years later that Scultetus described a typical case, and that even such modern surgeons of the time as Hunter, Gooch, and Cheselden were but imperfectly acquainted with the nature and course of the disease. Russell's essay is of value chiefly for the full and systematic description he gives of the clinical course of the disease. In his treatment he unconsciously gropes towards the modern doctrine of artificial hyperaemia in suggesting warm fomentations in the early stages.

James Russell (1755–1836)

He presented an interesting specimen to the College, the history of which is that it was from a male aged 31 years. When 17 years of age sailing to the Baltic he fell on deck with his leg doubled under him. Great swelling of the knee with pain and inability to use the limb followed. Seventeen days later in Riga, while walking with crutches, he again fell and, being conveyed to hospital, was told that " the bones below the knee were splintered ", and he was confined to bed during six weeks. In the following year he was in the Royal Infirmary, Edinburgh, and, refusing amputation, was discharged after a fortnight's residence. A year afterwards the swelling was incised and a sinus formed. When the sinus healed up his temperature rose and the cicatrix re-opened to form a permanent sinus from which the discharge gradually increased to about 500 c.c. in 24 hours. To obviate the discomforts of the discharge and to facilitate the washing out of the cavity Russell inserted a plug of wood and tow, increasing its size as required until the opening in the bone measured 25 mm. in diameter. His health began to deteriorate and he had recurrent attacks of hectic fever and at last submitted to amputation.

A contemporary writer in the *Medical Times and Gazette* describes Russell as a tall, thin gentleman, who wore a red wig, and was always dressed in black, with a white neckcloth—not a tie, but a " choker " of the Beau Brummel type. He indulged in a broad frill on his shirt, and knee breeches, though the muscular development of his lower limbs hardly warranted this attire. He is said to have yawned while he lectured, and continued to lecture while he yawned.

Edinburgh University can lay claim to a share of the glory reflected from the name of Sir Charles Bell (1774–1842), for it was in Edinburgh that his attention was first turned to a study of the nerves. He was a brother of John Bell, in whose anatomical room he acted as assistant.

A sinus from osteomyelitis of the tibia sealed with a wooden plug.

His brother, John, was deeply involved in medical polemics, and, lest the prejudice aroused should be extended to himself, Charles decided to remove to London, taking with him the manuscript of his first great work on the *Anatomy of Expression*, which at once established his reputation. Through his ardent devotion to private investigation he never acquired the practice he had hoped for in London and eventually accepted the Chair of Surgery in Edinburgh. His researches on the function of the nerves culminated in his great discovery that there were two kinds of nerves—" sensory " and " motor ", each subserving its own purpose. In 1807, he wrote to his brother, George, later Professor of Scots Law, of his new ideas and of how he had noted that when he pricked the posterior filaments the parts were immediately convulsed. Thus was the function of the spinal nerve roots demonstrated, though the conclusive experimental proof was left to Magendi twelve years later because Bell so disliked animal experimentation.

In addition to proving that there are two great classes of nerves, he discovered many other important facts regarding the function of individual nerves. He demonstrated that the fifth cranial nerve is a mixed nerve, and described Bell's paralysis of this nerve, as well as the paralysis affecting the scapula, resulting from a lesion of the external respiratory nerve of Bell.

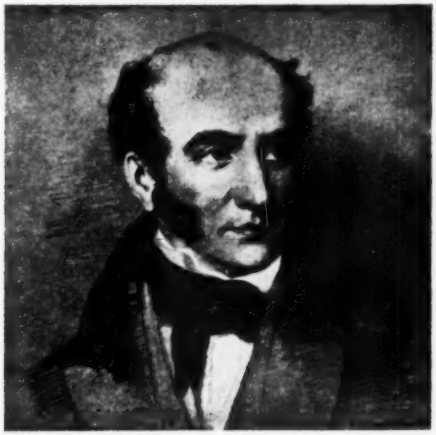
On his return to Edinburgh, he filled the Chair with acceptance, published a book on surgery, and revised his work on the nervous system, while his Bridgewater treatise on the hand had a great vogue and passed through many editions.

Charles Bell was a genial, unaffected, kind-hearted man, with a captivating twinkle behind his eyeglasses, and with something of the dandy in his attire. He was much lionized in London, and in 1829 was Knighted for his physiological discoveries. He was an able surgeon and attended the wounded after the battles of Corunna and Waterloo, making interesting sketches of what he saw.

The Surgical School of Edinburgh was now, in this, the first half of the 19th century, at the height of its fame, but two figures stood out above all the others, and to both orthopaedic surgery owes a debt.

Robert Liston was a son of the manse and was born at Ecclesmachan in Linlithgowshire. He became a student of John Barclay, a great anatomist, in 1810, with the ambition of becoming an operating surgeon. Later he had anatomy rooms of his own and with the help of James Syme as demonstrator he taught a class of sixty students. Many tales were told of his escapades as a resurrectionist in those days when anatomical material was scarce. He might well, says Guthrie, have been the original Dr. McFarland of Robert Louis Stevenson's *The Body Snatcher*.

Syme and Liston were at first great friends, but the constant association of two such brilliant men inevitably led to difference, and " a certain coldness between them " ended in an open rupture. Their cooperation and teaching were dissolved and their relations in public were so embittered that Syme was denied the appointment of Surgeon to the Royal Infirmary, as the Managers feared disturbing scenes between them in the presence of students. Liston, however, was defeated by Syme later in a bitter contest for the Chair of Clinical Surgery. This was a crowning blow and influenced Liston in accepting the offer of the Chair of Surgery at University College, London, but, though depriving the surgical school of Edinburgh of one of its brightest ornaments, his time in London was so fully occupied that he wrote little of importance after leaving Edinburgh.



Robert Liston (1794–1847)

One of Liston's earliest and most notable contributions to orthopaedic literature was on *Fractured Neck of the Femur*. In this he pointed out the absolute necessity of replacing the fragments and of securing their immobilization, and in it he disagreed with the views of Sir Astley Cooper, especially on the effect of synovial fluid on the union of the fracture. He proved that there is no reason why a fracture of the neck of the femur should not unite as well as any other when put in circumstances favourable to such an occurrence. That his views were sound is proved by the fact that his statements are acceptable to us to-day.

His methods were hardly up to the standard of his theories, but some have survived even though used only occasionally and then as first-aid measures, for he introduced what we now know as Liston's Long Splint.

He introduced many novelties, such as the flap method of amputating, the credit for which is granted to him even by modern American writers; his shoe for club-foot; and his devices for reducing dislocations. He described, in his chapter on "Tendons" in his *Practical Surgery*, an ingenious apparatus for the treatment of ruptured tendo-Achilles, and points out that Monro *primus* and John Hunter both suffered this accident. The accident to Monro is related in the *Travel Journals* of Dr. Peter Camper. Camper tells how he met Dr. Donald Monro, the second son of Monro *primus*, in London, and how Donald Monro stated that in 1743 his father "had torn his tendo achillis when dancing the Scots measure" (reel).

Liston in his book says of this ruptured tendon: "It is an accident that most frequently occurs to those who have been for a time unaccustomed to violent action of the muscles. It happens to gentlemen of mature years, who, forgetting these, join in the sports of youth, attempting to skip and dance as they were wont to do; suddenly they suppose that someone has inflicted a blow on the leg from behind—their dancing is arrested, the foot cannot be extended, and the nature of the case is forthwith apparent to the most careless observer." How much more graphic than the stilted descriptions in textbooks of to-day!

He is still remembered, too, for what he then called his "bone pliers". These were made for him by "Mr. Young, a most ingenious cutler in College Street," and were designed to deal with metacarpals. They were soon found, however, to have a much wider application, and to this day Liston's Bone Forceps are found on every instrument table.

Liston was often rough, abrupt and contentious in public relations, but was kind and charitable to the poor, and gentle in the sick room. He is described as wearing a bottle-green coat with velvet collar; double-breasted shawl vest; grey trousers, and Wellington boots; the thumb of one hand stuck in the armhole of his vest; and chewing an orange-stick tooth-pick. With one or two exclusions from this description—notably the coat and the toothpick—he can be seen in a painting now in University College, carrying out the first operation under ether in this country—an amputation—a bare two months after Morton's successful demonstration in the Ether Dome in Massachusetts General Hospital in October 1846. One of those who witnessed Liston's operation, and who can be seen in the painting, was Joseph Lister, then a student.

Liston published a remarkable series of cases of aneurysms, five in number, which had occurred in his own practice over a period of five to six weeks, and in this paper he recorded the first successful case of removal of the scapula without sacrificing the arm—an entirely original procedure—as well as the first successful case of ligation of the subclavian artery.

This case is full of interest. The patient, a boy of 16, had been the subject of a full consultation of all the surgeons of the Edinburgh Royal

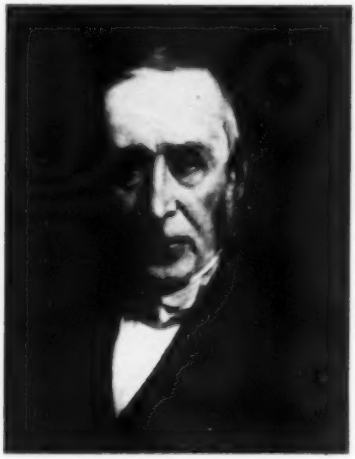
Infirmary. "It was deemed by them imprudent and not advisable to attempt any operation." When Liston was consulted, however, he took a different view and next day proceeded to the operation in a small, badly lit room. He describes it: "I began by making an incision of a foot long at least, from the axilla to the lower and posterior part of the tumour. The latissimus dorsi was then cut across at about two inches from its insertion, so as to expose the inner edge of the swelling, with a view to tie the subscapular in the first instance. I could not tie that subscapular artery owing to its depth as it passed under the lower edge of the tumour, out of the reach of my fingers. I then proceeded, as is my custom in the extirpation of tumours, to dissect where I expected vessels to enter from the suprascapular. With this view, in detaching it from the spine of the scapula, I felt my finger and knife dip into the body of the tumour. This was attended with a profuse gush of coagula and florid blood. I immediately thrust my sponge into the cavity, so as nearly to command the haemorrhagy. One of my assistants, at the same time, tried to compress the subclavian, but to no purpose, as the shoulder and arm were much raised to facilitate the dissection in the axilla, which circumstance increased the difficulty of commanding the vessel on the left side. The patient, who had borne the operation well, exhausted by this, and the loss of blood, after some efforts to vomit, now dropped his head off the pillow, pale, cold, and almost lifeless. I then only became aware of the nature of the case, and saw that nothing but a bold stroke of the knife could save the boy from immediate death. Pulling out the sponge, therefore, with one rapid incision I completely separated the upper edge of the tumour, so as to expose its cavity; and, directed by the warm gush of blood, immediately secured with my finger a large vessel at the upper corner, which, with open mouth, was pouring its contents into the sac. With my right hand I then cleared away the coagula, and, dissecting under my finger, separated the great subscapular artery, so that one of my assistants could pass an aneurysm needle under it at its origin from the axillary, and about an inch from the sac. After tying this, and two other large vessels which supplied the sac, I dissected off the tumour from the ribs without further haemorrhagy, cutting with my knife the carious scapula and under part of the sac."

That was quite a wonderful feat as an operation done 140 years ago, but even more it excites our wonder when we realize that there was no anaesthetic in those days other than a big dram of whisky.

It brings us to another interesting point and that is that we may consider the Royal College of Surgeons of Edinburgh to have a close connection with a pioneering of anaesthesia. It must be well known to many of you that that College, under their Seal of Cause of 1505, was granted privileges other than the right to dissect a condemned man, for it was further ordained: "That na person man or woman within the burgh make or sell ony acqua vitae except the maisters, brothers, and freemen of the said Craft."

And for what other purpose would such a professional body have a monopoly of selling whisky than for the purpose of using it to alleviate the pain of operation? And so the Edinburgh College may well be looked upon as an early sponsor of anaesthesia!

James Syme, who has been called the Napoleon of Surgery, was born in 1799 in his father's house in Princes Street, almost opposite where the Scott Monument now stands. Shy and reserved as a boy, he made few friends among his High School fellows, and shared little in their outdoor sports. When studying chemistry at the age of 16, he discovered a solvent for rubber and found that by brushing the solution on a silk coat he rendered it waterproof. His publication of this was noted, and a



James Syme (1799–1870)

Glasgow manufacturer, Mackintosh, adopted the invention and patented it, and, making a fortune from it, secured an adventitious immortality for his name.

Syme was a cousin of Liston, and commenced his career by teaching anatomy and practising surgery along with him. The quarrel with Liston and his failure to secure an appointment in the Royal Infirmary left Syme undaunted and, as all that he wanted was a hospital, he established one of his own. He leased Minto House, a town house of the Elliots of Minto, and converted it into a private hospital—certainly the earliest private nursing home in Edinburgh. There he developed the innovations and improvements with which his name is still associated.

Syme's most important contributions to surgery were on amputations and excisions. In his *Excision of Diseased Joints*, published in 1831, he was the first to show that excision is usually preferable to amputation, and the adoption of this new principle is due to him, although it was afterwards more fully developed by Ferguson. At this time resection of a major joint was a formidable undertaking, carried out only occasionally by a very few of the exceptionally daring surgeons. Syme's impressive plea for excision as an alternative to amputation was a lasting contribution to conservative surgery. If he had done nothing else he would have been one of the great benefactors of the human race.

An unpublished caricature of James Syme reducing a dislocation of the shoulder.

In 1835 he had to treat the case of a young girl who suffered from osteomyelitis of the tibia. After performing an amputation he dissected the leg and found new sheets of bone covering the dead shaft which were apparently produced by the periosteum. To determine that periosteum could and did produce bone, he carried out an interesting series of bone experiments on dogs and convinced himself that this was so.

Amputations of the foot were devised about this time by Lisfranc, Pirogoff and Syme, of which the most interesting, and the only one now in use, is the last. It has had a varied career, and had fallen from grace before the last World War, due to a great extent to the influence of limb-makers who, from their point of view, favoured a higher amputation. Its chief advantage is that it not only leaves the leg but also a stump on which the whole weight can be borne unaided by any artificial limb. Although

Edinburgh surgeons have always championed this operation, its most powerful advocates came from Canada. In 1941, Gallie, after studying the amputees over a period of twenty years, recommended the Syme operation for all cases suitable for a low amputation. The United States Army and Navy Hospitals also continue to favour the method, and in 1946 Thomson and Aldridge published a very favourable report on it from the Army Amputation Centre. It has been said that on this achievement alone Mr. Syme might have based his reputation as one of the greatest surgeons who ever lived.

Syme was the first in this country to perform the operation of subcutaneous tenotomy for wry-neck, and excision of the clavicle for sarcoma. He was a dominating figure in European surgery for a quarter of a century. There were " few advances in surgery that had not received some impulse from his indefatigable and vigorous mind ".

Fortunately his quarrel with Liston ended happily, for Liston wrote to him saying he could not resist the temptation of saying a few words with a view to bringing about a reconciliation. " Write and tell me that you wish to have our grievances and sores not plastered but fairly cicatrized." Syme was equally generous, and the old friendship was renewed and later, when Liston visited Edinburgh, he spent much of his time under Syme's roof at Millbank, a house now incorporated in the Astley Ainslie Hospital.

To this period of Liston and Syme belongs the introduction of anaesthesia, one of the greatest contributions ever made to the progress of surgery.

As I have mentioned, Robert Liston performed the first painless operation in England under ether anaesthesia and his success stimulated James Young Simpson to employ the same means to abolish the pains of parturition. But for this latter purpose ether did not prove an ideal anaesthetic and Simpson set himself to discover a better.

The story of the discovery of chloroform has often been told, but Professor Miller's version of it will bear repetition here:

" Most of these experiments were performed after the long day's toil was over, at late night or early morn, and when the greater part of mankind were soundly anaesthetised in the arms of common sleep. Late one evening—it was the 4th of November, 1847—on returning home after a weary day's labour, Dr. Simpson, with his two friends and assistants, Drs. Keith and J. Matthews Duncan, sat down to their somewhat hazardous experimental work in Dr. Simpson's dining room. Having inhaled several substances, but without much effect, it occurred to Dr. Simpson to try a ponderous material which he had formerly set aside on a lumber-table, and which, on account of its great weight, he had hitherto regarded as of no likelihood whatever. That happened to be a small bottle of chloro-

form. It was searched for, and recovered from beneath a heap of waste paper. And, with each tumbler newly charged, the inhalers resumed their vocation. Immediately an unwonted hilarity seized the party; they became bright-eyed, very happy, and very loquacious, expatiating on the delicious aroma of the new fluid. The conversation was of unusual intelligence, and quite charmed the listeners—some ladies of the family and a naval officer, brother-in-law of Dr. Simpson. But suddenly there was a variety of sounds being heard like those of a cotton-mill, louder and louder; a moment more, and all was quiet, and then—a crash. On awakening, Dr. Simpson's first perception was mental : ' This is far stronger and better than ether,' he said to himself. His second was, to note that he was prostrate on the floor, and that among the friends about him there was both confusion and alarm. Hearing a noise, he turned round and saw Dr. Duncan beneath a chair, his jaw dropped, his eyes staring, his head bent half under him, quite unconscious, and snoring in a most determined and alarming manner. More noise still, and much motion. And then his eyes overtook Dr. Keith's feet and legs, making valorous efforts to overturn the supper-table, or more probably, to annihilate everything that was on it—I say, more probably, for frequent repetitions of inhalation have confirmed, in the case of my esteemed friend, a character of maniacal and unrestrainable destructiveness, always under chloroform, in the transition stage. By and by, Dr. Simpson having regained his seat, Dr. Duncan having finished his uncomfortable and unrefreshing slumber, and Dr. Keith having come to an arrangement with the table and its contents, the sederunt resumed. Each expressed himself delighted with this new agent, and its inhalation was repeated many times that night—one of the ladies gallantly taking her place and turn at the table—until the supply of chloroform was fairly exhausted."

Sir George Ballingall was appointed Regius Professor of Military Surgery in Edinburgh University in 1822 and lectured on the subject for thirty-two years. He produced a text-book, *Outlines of Military Surgery*, and it is of interest to us to-day because in it he describes the closed method of healing wounds. He describes how Larrey treated wounds, both simple and compound, with compression and cushions of straw, leaving them undisturbed till the completion of the cure. He points out how the method is akin to that followed by the natives of India, where Ballingall had served for some years. He described the case of a little native boy who had been run over and sustained a compound leg fracture. He says, " I was preparing to amputate this boy's limb when his parents came and carried him away to the potter in an adjoining village, who enveloped the leg in clay, and I believe finally cured the patient." The method has been re-discovered and Winnet Orr's name and others have been attached to this evidently old method.

John Goodsir, born at Anstruther in 1814, was appointed to the Chair of Anatomy in 1846, succeeding Monro *tertius*. He was tall and gaunt,

but in every sense of the term an impressive figure, though his gait was tottering from an ataxic condition. Though hesitating somewhat in speech, and though his accent savoured of his native county, he commanded the attention of his class and aroused their intelligence by his suggestive remarks. " Facts, gentlemen, are what you should aim at; never use the word ' about ' ; always note the exact amount, measurement or weight as the case may be." In Edinburgh he dressed for Syme, and was fully aware of Syme's researches on the production of bone by periosteum. By the use of the new compound achromatic microscope and the study of marine forms of invertebrate life, dredged from the Firth of Forth, he began to unravel the obscure and complex process of bone building in the human skeleton. He had no doubt that the human skeleton was laid down, not by arteries, but by an element of which Hunter had no conception—separate self-acting units of living matter. He thus convinced himself that living cells acted as depositors and absorbers of bone, not, as had been described, the arteries and lymphatics themselves. That discovery marks a new chapter in our knowledge of bone. His investigations were published in 1845 and disagreed, of course, with Syme's conclusions on the same subject. He was of the opinion that periosteum has no bone-forming power. He termed it a limiting membrane and stated that its osteogenic power was inherent in the layer of cells directly beneath it which are almost always removed with it.

Goodsir made important additions to our knowledge of cartilage. Hunter had taught that absorption of tissues was carried on by lymphatic vessels. Goodsir could find no lymphatics in articular cartilage and yet it could undergo absorption. He examined sections of the articular cartilage in a tuberculous joint and noted that the pits in the cartilage—the areas undergoing absorption—were filled with a cellulo-vascular tissue. He satisfied himself that these invading cells were demolishing the cartilage. He observed that as the invaders approached, the cartilage cells multiplied, became large, rounded and swollen, and ultimately ruptured, and their space was then occupied by the invaders. Goodsir traced these invaders to the peri-articular plexus of the joint.

Some years later, Goodsir, this master anatomist of Edinburgh, became interested in the mechanics and the movements of the knee joint and described for the first time the screwing movement at the joint when it was reaching full extension. Goodsir recognized the screw-home movement as a cunning mechanism for securing and locking the joint. He pointed out that this locking movement becomes impossible if there is the slightest displacement of the semilunar cartilages. He noted and described for the first time the movement of these cartilages in the joint and how they help to fill the inequalities as the joint is flexed and extended and how, when damaged, they impeded the free movement of the joint.

At about this time Hugh Owen Thomas came to Edinburgh from Wales to study for his Diploma. He arrived with his brother and a letter of a pastoral character. It was written by their minister in Liverpool, and, with old-fashioned decorum, committed them to the care of a worthy citizen of Edinburgh. Hughes Bennett, of Edinburgh, wrote of Thomas at this time as " an honourable and industrious student of an enquiring mind and with a desire to know the truth ". So we may assume that his time in Edinburgh, though short, was well spent, and although he gained no academic distinctions he gave evidence of those qualities which proved of such value in later life. He has been called the " father of modern orthopaedic surgery ", and it is good to think that in Edinburgh he was put

Thomas Annandale (1839–1908)

on the right road to earn that title. If for no other reason, his name will live for ever because of the Thomas's Splint, which in the first World War reduced the mortality in compound fractures of the femur from 80 per cent. to somewhere in the neighbourhood of 20 per cent.

Goodsir engaged a new demonstrator of anatomy about this time in the person of Thomas Annandale, the son of a surgeon in Newcastle. He became a surgeon to the Royal Infirmary and in 1877 succeeded Lister in the Chair of Clinical Surgery, and in the following years he made history by his operations on the knee joint. The modern practice and acceptance of surgery as a standard procedure in the treatment of affections of this joint began with his work. In 1879 he reported a case of loose cartilaginous bodies recovered from the knee joint by direct incision with antiseptic precautions.

But even more dramatic was the operation which was recorded in the *British Medical Journal* in 1885, in which he described the first deliberate and planned operation for the relief of the internal derangement of the knee caused by a displaced cartilage. On 16th November 1883 he opened the joint of—appropriately enough—a miner from the North of England, and found a tear of the anterior horn of the meniscus. The cartilage was drawn forwards, stitched to its proper place, and on 24th January, after seven weeks in plaster of Paris, the patient was discharged cured, the movements of the joint being good and the limb steadily gaining in strength. It is not only the success which attended this, the very first operation on a cartilage, which is of interest, but even more so is the discovery of the exact kind of lesion which caused internal derangement of the knee joint.

Edinburgh, too, must take some credit for the greatest surgeon, for Lister spent one-third of his active career in that University. He came at the instigation of two of his London teachers to follow surgery under Syme, whose house surgeon he became and whose eldest daughter he afterwards married. One of his early papers while in Edinburgh was on inflammation and was based on his investigations on the foot of a frog captured at Duddingston Loch. It was the beginning of his investigations which led to his antiseptic theory. He received during the later years of his life many honours and world-wide recognition. At a Banquet of the Royal Society the American Ambassador, Bayard, addressed him thus : " My Lord, it is not a profession, it is not a nation, it is humanity itself which, with uncovered head, salutes you." When his body was laid to rest in Westminster the world had buried her greatest surgeon.

Wallace Williamson said of him, in a Memorial Discourse in St. Giles at his death, " Yet greater than his greatest achievement was the man himself, and the final secret of his greatness was that serene simplicity which was his most distinguishing characteristic. His was the grave and thoughtful courtesy which bespoke the Christian gentleman and the earnest lover of his kind."

And there are other surgeons of Edinburgh who lived in more recent times to whom Orthopaedic Surgery owes a debt.

Sir Harold Stiles, one of the greatest anatomical surgeons, was keenly interested in orthopaedic surgery, perhaps because so many orthopaedic operations demanded a meticulous knowledge of anatomy. To see him operating for a cervical rib or exposing a damaged brachial plexus was a supreme lesson.

Sir John Fraser occupies a special place because of his work on tuberculosis, particularly as it affected bones and joints. He wrote a fine treatise on the subject and was responsible for the operation of laminotomy in paraplegia.

We owe, too, a great debt to William A. Cochrane, the first specialist in orthopaedic surgery in the country. He has a monument to himself in Edinburgh in the Princess Margaret Rose Hospital—surely and admittedly one of the most beautiful of children's hospitals. We must, too, put to his credit the foundation of the first Chair in Orthopaedic Surgery in Scotland, a Chair of which he would have been the first occupant had he not, all too soon, been lost to the profession by his early death. That Chair is now acquiring a great reputation by the work of its present occupant—Professor J. I. P. James.

It is singularly appropriate, Sir, that you should have chosen this day for the lecture, for on the morning of this day twenty-seven years ago Sir Robert awoke and asked that the wireless from Australia be turned on to let him hear how the Test Match was progressing. All that day he was in good spirits, but when dusk drew on he seemed haunted by a premonition of another heart attack. On the evening of Saturday, January 14th, 1933, he fell quietly asleep and only woke to pass away just before midnight.

The orthopaedic surgeons who knew Sir Robert Jones become fewer in number every year, but with that few there still flourishes a bond of affection that the passage of the years cannot weaken, and a memory that age cannot wither. God grant that those who succeed us will ever have for him that same love and respect that is ours, and that they will look upon him as an example to inspire and, so far as in them lies, to emulate: may they ever be informed and inspired by those principles of orthopaedic surgery which by his own genius Sir Robert so moulded and fashioned that they stand at the very roots of our specialty to-day.

SIR ARTHUR SIMS COMMONWEALTH TRAVELLING PROFESSORSHIPS

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND has appointed Mr. Hedley J. B. Atkins, F.R.C.S., Professor T. Cecil Gray, F.F.A.R.C.S., and Dr. Paul Wood, O.B.E., F.R.C.P., Hon. F.A.C.C., to the Sir Arthur Sims Commonwealth Travelling Professorships for 1961.

Endowed in 1944 by Sir Arthur Sims, the New Zealand Industrialist, the purpose of the professorships is to establish closer links between scientific workers in the Dominions and in the older seats of learning and centres of research. The appointments are made on the recommendation of an Advisory Board consisting of the Presidents of the Royal Colleges of Surgeons of England and Physicians of London, and of the Royal Colleges of Physicians and of Surgeons of Australasia, Canada and South Africa.

Mr. Atkins and Professor Gray are to travel in Australia and New Zealand, and Dr. Wood will make a tour of Canada.

THE ANATOMY AND THE PATHOLOGY OF MULTIPLE HYDATID CYSTS IN THE THORAX

Arris and Gale Lecture delivered at the Royal College of Surgeons of England

on

26th November 1959

by

N. R. Barrett, M.Chir., F.R.C.S.

Surgeon, St. Thomas's Hospital and Brompton Hospital

Introduction

A GREAT DEAL of our knowledge about hydatid disease springs directly, or indirectly, from the life-work of the late Professor Dévé of Rouen. During the first 40 years of our century, this great man published more than 450 original papers that probed into every nook and cranny of this subject. Important contributions have also been made by South American surgeons, by Australasians, such as Sir Louis Barnett, Professor Dew, Officer Brown, and many others. To these I offer my gratitude for the instruction of their writings and for the help that their labours have yielded.

This lecture concerns various anatomical and the pathological problems caused by multiple hydatid cysts in the chest. Most surgeons interested in this topic are aware of the diagnosis and treatment of solitary, simple, lung cysts; but what thoughts and what actions should multiple hydatids evoke?

Some may feel that the subject is so rare that it need not occupy their attention; and this opinion may be fortified by a statement that occurs in current texts, namely that liver cysts are ten times more numerous than those in the chest.

The relative incidence of liver and thoracic cysts

Although it is true that the liver is more commonly the seat of hydatid disease than any other viscus, a relatively large number of cysts occurs in the lungs in Great Britain.

Few surgeons get a true picture of the general anatomical distribution of hydatid cysts, because many patients are treated nowadays by specialists in a particular field. As an instance of this my own figures could suggest that cysts in the chest are ten times more common than those elsewhere! During the last 25 years I have treated or seen more than 85 patients who had thoracic cysts as compared to a mere handful with parasites in the abdomen. The figures for patients admitted to St. Thomas's Hospital

between 1940 and 1958 are as follows: hydatids in the lungs, 9 cases (a figure biased by my own interest in this disease); hydatids in the liver, 7 cases; hydatids in other viscera, 6 cases.

In the past many thoracic hydatids escaped detection, and there are reasons why this should have been so. Most of the figures, as to the incidence in various viscera, were collected before mass radiography was practised and when routine chest films were not done. They ignored the fact that most lung cysts were clinically silent until, or unless, they became complicated; they excluded patients who expectorated the parasite and cured themselves, as well as those less fortunate individuals who retained the ruptured membranes as a sequestrum in a chronic lung abscess of " obscure aetiology ". The figures were loaded in favour of liver and peritoneal cysts because practically every patient who harboured a parasite of this kind ultimately found out the true diagnosis. Untreated liver hydatid disease ends either in death of the parasite—which is rare—or in death of the host—which is common; lung cysts on the other hand may be expectorated or may masquerade as chronic pulmonary suppuration and so escape diagnosis.

There are two experimental points that might bear on the relative frequencies of thoracic and abdominal hydatids.

It is generally assumed that the hexacanth embryo, that settles in the lungs and grows into a hydatid cyst, has migrated in the blood vessels from the stomach and through the capillary mesh of the liver. But by getting into the lymphatic channels of the stomach it could journey by way of the thoracic duct and mediastinal lymphatics directly to the lungs.

Secondly, if live ova are introduced into the alimentary canals of laboratory animals such as rabbits, monkeys and cats, the majority of the hydatids that result are pulmonary. In squirrels 97 per cent. are in the lungs, and less than 3 per cent. in the liver.

It is understood that hydatid disease in man and in animals are not comparable; indeed there are even variations in the behaviour of the parasite in men who live in different countries. For instance, *multiple* lung cysts are comparatively rare in Australasia, but occur in at least a quarter of the cases in England. The patients we have seen and treated were a mixed bag in that some had acquired their disease in England or Wales and others brought it home with them from abroad.

General observations about multiple hydatid cysts in the chest

As it is proposed to discuss how multiple hydatid cysts develop in the chest it is necessary to outline some broad principles. Some of the statements that follow have been the subjects of long arguments in the past, but nowadays they are clarified.

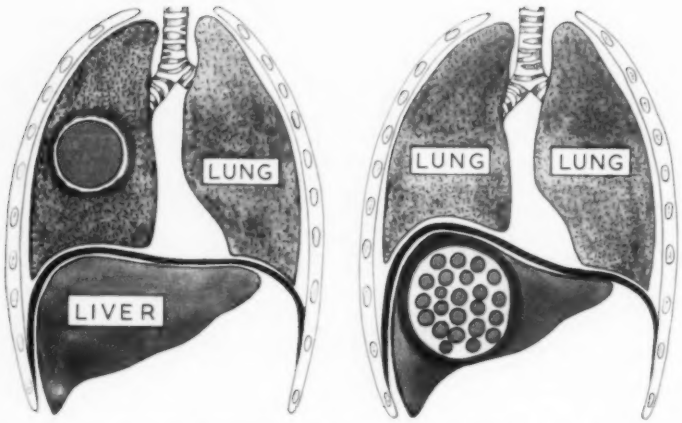


Fig. 1. This diagram illustrates the following general points:
1. Simple hydatid cysts are common in the lungs; complicated cysts are to be expected in the liver.
2. The lungs tolerate large, space-occupying lesions more favourably than does the liver.
3. Infection in or around the parasite develops sooner in the liver than in the lungs.

(1) Multiple hydatid cysts can grow in the chest as a result of:

(*a*) Multiple primary infestations from one or more dogs on one or more occasions.

(*b*) As a result of complications that befall a simple lung cyst. These include partial or complete rupture into the bronchial tree; and imperfect surgical operations at which live hydatid elements contaminate the operation field.

(*c*) As a result of leakage of a hydatid, elsewhere in the body, into an adjacent vein. In practice this only occurs from three sites, namely the liver, the heart and the iliac bones. Metastases of these kinds are rare.

(2) In the usual life cycle of the taenia ecchinococcus, the tape worm, living in the intestines of a dog, produces ova that are eaten by a sheep—or a man. Once inside the stomach of the second host the chitinous coat that envelops and protects the ova is dissolved by the gastric juices, and the embryo that emerges passes through the stomach wall into the portal or the lymphatic systems of that viscus. On reaching the liver, the lungs, or the systemic circulation, it ultimately settles down and grows into a hydatid cyst. Inside the hydatid cyst brood capsules form; these contain scolices

and from the latter the new tapeworms grow when the hydatid has been eaten by a dog. Throughout these evolutions there is only one stage at which the parasite grows large—namely the hydatid cyst.

When fluid from a hydatid cyst is spilled into the tissues, by rupture or treatment, new hydatid cysts can grow in the contaminated field. At first sight one might argue that such a happening would be impossible because the elements inside a hydatid cyst should go on to grow into tapeworms. Dévé proved a long time ago that scolices could revert to hydatid cysts. This is an example of retrograde metamorphosis and the possibility was denied for many years. The implications of these observations are that whereas ova and embryos are the agents that disseminate primary hydatid disease in man, scolices are the operative elements in secondary spread. Scolices themselves are too small to be seen with the naked eye, but brood capsules that contain 3 or 4 scolices can be seen and are called " hydatid sand ".

Spilling hydatid fluid, naturally or as a result of operation or aspiration, does not always lead to new cysts because some mother cysts are too young to have produced scolices and others have become sterile with age.

(3) A simple single hydatid cyst can become a conglomeration of daughter cysts by endogenous or by exogenous reproduction.

(4) Lung cysts that rupture into the bronchial tree are partially or completely expectorated. The former results generally in the parasite becoming re-established as multiple hydatids and the latter in cure of the disease. When a lung cyst ruptures into the bronchial tree the air passages of both lungs are sprayed with active scolices during the bouts of coughing that result from the accident. *But the bronchial dissemination probably never occurs in man*, although Dévé succeeded in producing bronchial dissemination in rabbits on one occasion.

The possibility of ova from a dog, as opposed to scolices from a hydatid in the patient's lung, being inhaled in dust and setting up pulmonary hydatid disease is a different problem. It is unlikely that inhaled ova can live in the human bronchial tree.

(5) The presence of multiple hydatid cysts in the chest often means that a simple primary cyst in the lung or elsewhere has become complicated. Daughter cysts and scolices live and flourish not only in " springwater " hydatid fluid, but in bile, pus or urine. Moreover, the demonstration that parts of the adventitia around a parasite have calcified does not mean that the contents of the hydatid can no longer reproduce themselves.

(6) When a primary cyst metastasizes by way of the venous system or the pulmonary artery, it must have undergone partial rupture into an adjacent vein, or into the heart. If it ruptures completely the result is likely to be fatal because of shock, anaphylaxis, haemorrhage or embolism of the membranes.

(7) The characteristic features of secondary hydatid disease in animals induced by injecting scolices into a vein are:—

(*a*) Bilateral pulmonary hydatid cysts.
(*b*) Often occurring in small conglomerations.
(*c*) Relative uniformity of size.
(*d*) The hydatids are peripherally placed in the lungs.
(*e*) There is a tendency to early intrapleural and intrabronchial rupture.

The radiological appearances of multiple hydatid cysts in the chest

The following remarks concern some of the radiological appearances of multiple hydatid cysts in the chest. They are taken at this point because the complexities of an individual case are often suggested in the first instance by radiology. It is the radiographs that set one thinking.

When a single, simple cyst is revealed in a chest film it is almost certainly situated in the lung. But if a number of parasites are discovered their anatomical positions are not certain. Some could be intrapleural, others mediastinal or in the pericardium. In addition others, that do not show up on ordinary chest films, may be palpable in the chest wall.

Solitary cysts are generally primary cysts; whereas multiple cysts may be primaries; but they may also be due to complications.

If multiple primary hydatids are present in the lungs they are generally of approximately the same size, because seeds planted under comparable conditions grow in a like way. If the parasites are of grossly different sizes there must be a reason for this. Perhaps the host was subjected to infestations on more than one occasion; perhaps a single primary cyst has become complicated and disseminated, or perhaps there is a primary hydatid leaking into a vein elsewhere.

Multiple unilateral hydatids have a different anatomical explanation from bilateral lung cysts. The former are generally due to a complication that has overtaken a primary cyst in one lung, or to rupture of a liver cyst through the diaphragm. Multiple bilateral cysts have been embolic in the blood vessels of the lung and have arrived at their destinations from elsewhere through the vena cavae, the pulmonary arteries or the thoracic duct.

Multiple primary hydatid cysts in the lungs

The greatest number of large primary cysts that we have seen is three. One of these was simple and two had ruptured into the bronchial tree. This patient died untreated.

The diagnosis and the management of such cases nowadays is not difficult. The objective is to take out all the hydatids by enucleation, segmental resection, or lobectomy without puncturing or rupturing the laminated membrane. Only by removing the hydatid intact can one be sure that scolices or fragments of germinal membrane have not been disseminated to the lung, the pleural cavity or the chest wall.

It sometimes happens that after a simple hydatid cyst has been enucleated without rupturing its membrane, one or more daughter cysts grow, later on, within the original adventitia. These cases could be due to small exogenous parasites that were present outside the laminated membrane at the time the first operation was done. But the dangers of spreading hydatid elements at operation by spilling clear fluid from the cyst are established and the surgical techniques for avoiding this are well known. The risks of bronchogenic spread after rupture have also been described as being remote; but the following case was seen at St. Thomas's Hospital some years ago and, in this instance, bronchogenic spread is a possible explanation of the observed events.

A young Indian man was X-rayed and found to have a solitary, simple hydatid cyst about the size of an orange in his right lower lobe. Being symptomless at the time his doctor advised against surgical treatment. One year later the hydatid ruptured and parts of the membranes were coughed up. The patient was considered to be doing well because the opacity that remained in the lower lobe was shrinking.

This sequence of events is important because the correct implications are seldom appreciated. When a simple cyst ruptures into a bronchus and is completely coughed up, the space that contained it remains for a varying time as an " empty sac ". The " empty sac " shows in radiographs as a ring shadow, or an empty cavity with thin walls. If, after expectoration, some hydatid fluid and fragments of membrane remain, they act as foreign bodies within the adventitia. South American surgeons have likened the pieces of floating membrane to lilies in a pond (the water lily sign) and the radiological appearances of this are typical. But, as the surrounding lung re-expands, the dead space within the adventitia is taken up and the lesion becomes radiologically dense and progressively smaller. The fact that the radiological picture is said to be improving often dictates expectant treatment. Consider what may be happening inside the lesion itself; either the parasite, at the time of rupture, disseminated live scolices throughout the cavity in the lung, or it did not. If it did the patient is likely to develop a chronic hydatid lung abscess because the residual membranes act as a sequestrum; the treatment of this is

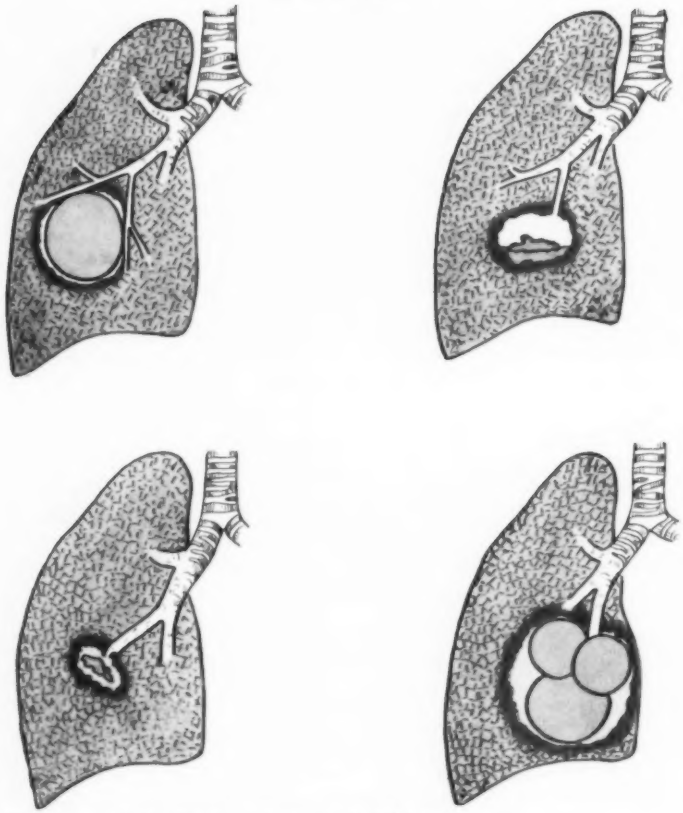


Fig. 2. (*top left*) Simple, pulmonary, hydatid cyst.
(*top right*) The cyst has ruptured. Most of the liquid it contained and some of the membranes have been expectorated.
(*bottom left*) The surrounding lung is re-expanding. *The lesion is diminishing in size.* BUT viable hydatid elements remain and *the patient is not cured.*
(*bottom right*) Daughter cysts are now established and the lesion is, once again, on the increase.

lobectomy. If scolices live, multiple daughter cysts reform within the adventitia and sooner or later the radiological lesion begins to increase in size again.

After rupture of the original simple cyst our Indian patient developed multiple daughter cysts; and when an operation was done to take these out, several additional hydatids were found, not in the lobe containing the daughter cysts, but in both the other lobes of the right lung. The fact that the latter were all in the one lung and away from

the cavity of the original parasite suggested bronchogenic spread. The alternative explanation was that the new hydatids were the result of a recent infestation; but this seemed to be unlikely.

The patient was shown to Professor Dew, who happened to be visiting St. Thomas's, and he agreed that it was difficult to explain the circumstances except by bronchogenic spread.

The relationship between hydatid cysts in the thorax and those in the liver

A patient who harbours a hydatid cyst may have one or more elsewhere. There is a special relationship between thoracic and liver cysts, and this is most relevant when the former are multiple.

When cysts co-exist in the liver and in the lungs the usual explanation is that there have been multiple infestations and some parasites have gone to one place and some to another.

Unfortunately the clinical diagnosis of liver cysts can be impossible, and the man who treats a lung parasite may be unaware that there are others in the liver.

A child, aged 9, had a simple hydatid removed from the lung. Convalescence was smooth. She had acquired the disease on a farm in South Wales to which she had been evacuated from London during the War. After the operation she returned to London and 10 years later a liver cyst was discovered and removed. These two parasites were probably acquired at the same period, but, being in different viscera, they grew at different speeds.

Statistics purporting to illustrate the frequency with which thoracic and hepatic cysts co-exist do not help a surgeon to treat his patient. My own impression is that the chances in any case are about four to one against multiple parasites in the lungs having originated in the liver.

I have tried a variety of ways of diagnosing hepatic cysts, that are silent, in patients who have pulmonary cysts. These included the usual clinical and radiological investigations, as well as pneumoperitoneum, and palpating the liver by incising the diaphragm whenever a hydatid was being taken out of the chest. The results were disappointing. It may be impossible to see or feel a liver hydatid as large, or larger, than an orange. But on two occasions I have found hepatic hydatids by aspirating the liver from the chest at thoracotomy. Some South American surgeons have advocated injecting thoratrast into the spleen to outline the blood vessels in the liver and, perhaps, to reveal a silent hydatid cyst.

There are two ways in which a liver cyst may initiate secondary parasites in the chest.

The first is rare, but important. A liver hydatid may rupture into a radical of the hepatic vein and discharge scolices into the inferior vena cava. There are, in the literature, one or two records that are explained in this way. Such a rupture is more likely to result in death than to disseminate live scolices.

On purely mechanical grounds it is difficult to understand how hydatid elements, capable of producing multiple cysts, could get into the lumen of an hepatic vein. To do so the parent cyst must have ruptured and either formed multiple hepatic daughter cysts, or it might have become infected

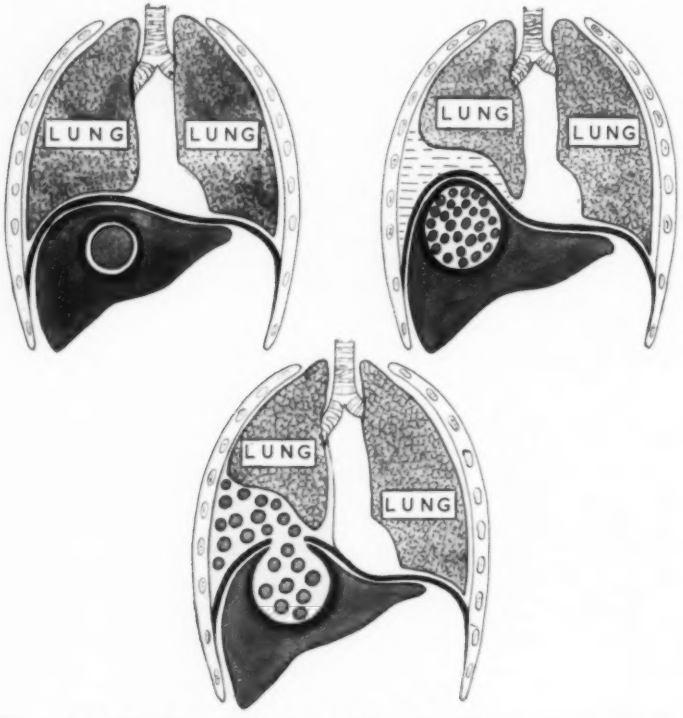


Fig. 3. (*top left*) There is a simple hydatid cyst in the liver.
(*top right*) This cyst has become infected, *after rupture*, and produced daughter cysts. There is a *sterile pleural effusion* above the diaphragm.
(*bottom*) The liver cyst has ruptured through the diaphragm, producing an *hydatid empyema*. On rare occasions, rupture can occur into the pericardium through the tendinous part of the diaphragm.

and developed into an hepatic abscess. In either case the adventitia of the host usually is thick and fibrous and the problem is how hydatid elements can get into hepatic veins without haemorrhage occurring into the cavity from which they originated.

In spite of these theoretical arguments it seems certain that this type of spread does occur, as the following case suggests.

A woman, aged 18 years, of middle European origin, who has been living in England for some years, attended St. Thomas's with a history of "pneumonia" followed by mild haemoptysis. No physical signs were found and a diagnosis was not made. Six months later, being in good health, she attended again and another X-ray of the chest was passed as being within normal limits. Two days later she died unexpectedly.

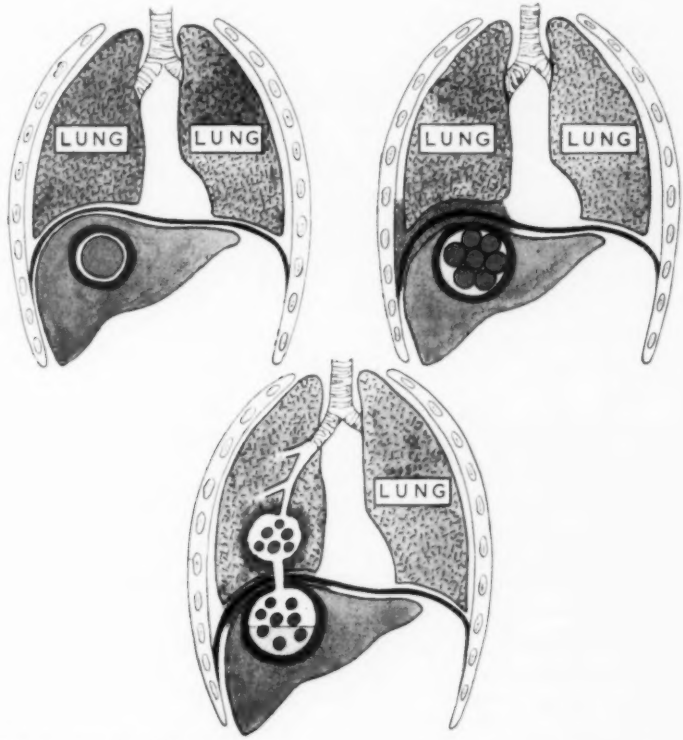


Fig. 4. (*top left*) A simple cyst.
(*top right*) The liver cyst has ruptured and become infected. Adhesions have formed between the liver and the diaphragm, and between the diaphragm and the lung.
(*bottom*) The liver cyst has ruptured through the diaphragm into the lower lobe of the right lung, producing, at first, a pulmonary hydatid abscess and, later on, a fistula between the liver and the bronchial tree.

At the post-mortem two large, thick walled, and partially calcified hepatic hydatid cysts, that contained many daughter cysts, were found in the liver. There was no evidence of bleeding into the hydatid cavity and yet both lungs contained multiple simple hydatid cysts about the size of marbles. The two liver cysts certainly antedated those in the lungs and there was no reason to suppose that the patient had been re-infected during the preceding two or three years.

Dévé analysed some recorded cases of multiple metastatic hydatid cysts in the lungs and in a group of 31 the cyst of origin was in the heart in 20 (64 per cent.), the liver in 8 (26 per cent.), and the iliac bone in 3 (10 per cent.). We may note that only one bone, the ilium, has been described as a possible source of metastases.

The second way by which a hydatid in the liver can get into the lung is more common. A cyst growing under the diaphragm is likely to grow through it, and to discharge its contents into the pleural cavity or the lung. Rupture of a liver hydatid into the pericardium or the mediastinum is unusual.

The majority of liver hydatids sooner or later become infected and develop daughter cysts. It is these particular parasites that are apt to rupture through the diaphragm; not the simple univesicular cysts. Thus a patient who has multiple thoracic hydatids that originate in the liver has complicated disease.

Rupture of an infected or complicated hydatid through the diaphragm is generally preceded by a sympathetic pleural effusion and the contents of the invading hydatid may be discharged into the effusion and produce an hydatid empyema.

If transdiaphragmatic perforation is preceeded by an inflammatory reaction, limiting adhesions probably form in the pleural cavity and the hydatid elements will then get into the lower lobe of the lung. This leads to pneumonitis and probably to abscess forming. Such an abscess communicates with adjacent bronchi and a broncho-hepatic fistula exists. The patient will probably be diagnosed as having a lung abscess of unknown cause, and although bile and scolices or hooklets may be found in the sputum, this is not invariable. Multiple daughter cysts are likely to grow in the lung as well as in the liver in these cases.

Surgical eradication of this type of disease involves pleuro-lobectomy as well as evacuation and drainage of the liver cavity.

Lung cysts that herniate into the chest wall or into the pleural cavity

When a surgeon finds hydatid cysts in the pleural cavity he must decide whether they have originated in the liver or whether the primary was in the lung.

There is an important difference between liver cysts that rupture into the *peritoneum* and lung cysts that rupture in the *pleural cavity* or the chest wall. Liver cysts are nearly always complicated at the time they rupture, that is they already contain multiple daughter cysts, and possibly bile and pus, whereas lung cysts are generally simple and without infection or daughter cysts.

A lung hydatid reaching the pleural surface gradually thins out the adventitia until it gives way. If there are no pleural adhesions the intact hydatid herniates out of the lung and falls to the bottom of the pleural cavity, leaving the cavity in which it used to live in the lung as an " empty

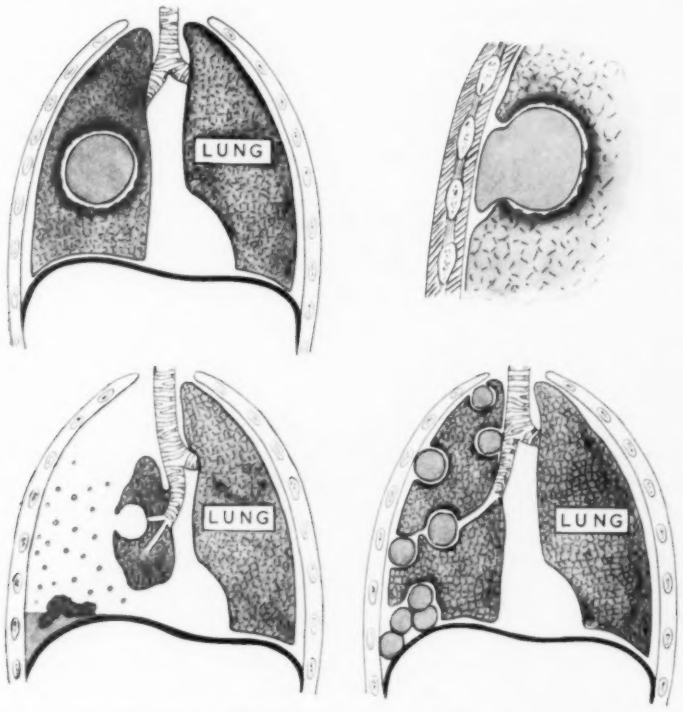


Fig. 5. (*top left*) Simple lung cyst.
(*top right*) The cyst has reached the surface of the lung and is extruding itself into the free pleural cavity.
(*bottom left*) The cavity in the lung remains and inevitably communicates with a bronchus. A pneumothorax occurs. The parasite falls to the bottom of the pleural cavity and probably ruptures in so doing. Hydatid elements are scattered throughout the pleural cavity.
(*bottom right*) Multiple " secondary " and " daughter " cysts form, some in the pleural cavity, some in the lung and some (ultimately) in the mediastinum or the chest wall.

sac ". This cavity always communicates with small bronchi in its walls. Thus the empty sac fills with air; the air leaks out into the pleural cavity; a pneumothorax or a tension pneumothorax develops and the cyst that caused the trouble lies unsuspected in the bottom of the pleural cavity.

Such a patient is frequently diagnosed as suffering from pulmonary tuberculosis, for the following reasons. The episode that brings the patient up to hospital is a spontaneous tension pneumothorax. Radiographs confirm this. The cyst may or may not be seen in the bottom of the pleural cavity; if it is, it is apt to be regarded as a " fibrin body ". Clinically there is a cough and a small amount of sputum streaked with blood.

When a hydatid herniates into the pleural cavity it may or may not rupture in the process. If it does not, it becomes embedded in the pleura and forms endogenous daughter cysts. If it ruptures the remnants of the membranes can sometimes be seen floating in the basal hydatid effusion. The pneumothorax may or may not become infected from the lung.

After a time the scolices liberated throughout the pleural cavity, from the ruptured cyst, grow into numerous secondary hydatids. These are outside the lung, but, as the lung re-expands, they show in radiographs as multiple opacities in the thorax. Their anatomical positions are obscure. Cases have been recorded in which secondary paravertebral pleural cysts have spread into the spinal canal through an intervertebral foramen and caused compression of nerve roots and of the spinal cord; and there are others in which pleural cysts have invaded the chest wall. There is only one way to cure such a complex situation, namely to do a pleuro-pneumonectomy without opening the parietal pleura, and it may be essential to sacrifice the lung whether it contains hydatid cysts or not.

The other possible sequence when a cyst is extruded from the lung is that local pleural adhesions prevent the parasite from getting into the free pleural cavity. In such circumstances it invades the chest wall, eroding and spreading the ribs in its path, and it becomes complicated by daughter cysts. I have seen two patients of this sort. The first was a New Zealand nurse who had three hydatid cysts deep to the right breast; and the second was a man who had a large fluctuant, undiagnosed cystic swelling between the scapula and the chest wall. This swelling was a collection of hydatid cysts. The first patient was treated properly and the wound was not contaminated; but hydatid fluid was spilt into the tissue of the man, and from the scolices this contained more cysts grew.

Cardiac hydatid disease

Primary hydatid cysts can grow in the myocardium. In 1956, Bello reviewed the literature concerning these cases and described more than 250 examples.

The embryo can take root and grow in any part of the heart, that is the hydatid that results may be subendocardial, myocardial or subpericardial. Unlike hepatic cysts those *in the heart seldom become*

infected, but being subject to constant, vigorous, contractions they are apt to rupture, or to tear and leak hydatid fluid and scolices. Complete rupture is generally fatal, partial rupture results in multiple parasites locally or in the lungs.

Dévé described a series of hydatid cysts in the myocardium of the left ventricle as follows:

35 contained daughter cysts.
22 were dead or degenerate.
20 were calcified in part.
9 were uncomplicated.

The size that a cardiac hydatid attains and the chances that it will rupture depends upon its position in the heart. Thus parasites growing in the wall of the right ventricle and the atria are more vulnerable than those embedded in the thicker left ventricle.

Until recently primary uncomplicated hydatid cysts in the myocardium were seldom diagnosed because they caused few symptoms; but routine and mass radiography of the chest has altered this, and nowadays a number—such as that reported by d'Abreu—have been successfully removed. On the other hand the clinical picture and diagnosis of complicated cases remains difficult. The patient may have cardiac tamponade, a pericardial effusion, multiple obscure opacities in and around the heart, or multiple bilateral pulmonary cysts.

Bello analysed 49 cases in which rupture of a myocardial hydatid had occurred. In 22 the hydatid had discharged into a ventricle, in 19 into the pericardium, and in 6 the pericardium as well as the ventricles were involved. 15 of these patients had had multiple vascular metastases and eight had had massive embolism.

When leakage from a myocardial cyst occurs it may do so into one of the chambers of the heart or into one of the great vessels. The result is likely to be dissemination of scolices into the pulmonary or into the systemic circulations. For the reasons already given, dissemination to the lungs is more to be expected than systemic spread. Leakage may also occur into the pericardium and be followed by the growth of multiple intra-pericardial hydatids, one or more of which may rupture back into a chamber of the heart. It may be impossible to locate the primary hydatid in the heart. If hydatid disease has been diagnosed some guide may be had because the adventitia of the primary hydatid (being older) is usually more fibrous than that of the secondary cysts; it is often calcified (a fact that may be revealed by tomography) and the cyst itself nearly always contains large numbers of minute and small daughter cysts.

When one considers how rarely hydatid cysts occur in the heart as compared with the lung, it is surprising that secondary infestation of the pericardium is twice as common as it is of the pleural cavity. And whereas the rare event of rupture of a liver cyst into the pericardium is generally fatal, a myocardial cyst that ruptures into the pericardium is not usually disastrous. Dévé quotes 55 examples of this complication: 9 patients died; in 46 secondary hydatid cysts grew. He also stated that in another series of 188 cases in which there were myocardial cysts at least 39 developed multiple hydatids in the pericardium. These intra-pericardial cysts may number as many as 30, and some can attain the size of an orange; variations in size are common.

Secondary cysts can become implanted upon and under the visceral pericardium, they can become pedunculated after attaching themselves to the parietal pericardium, and they can encroach upon and invade adjacent structures such as the lung. A cyst that impinges upon the thin walled atrial wall or upon the great blood vessels in the hilum may rupture secondarily into the pulmonary bloodstream.

The following contingencies may thus be found clinically: there may be a primary myocardial cyst that is complicated; there may be multiple daughter cysts in the pericardium, possibly insinuating themselves amongst the great vessels in the hilum; or there may be multiple cysts in the lungs, some of which are likely to be, or to become, complicated.

If by good fortune a primary hydatid cyst is discovered in the heart, there is every reason to operate without delay; there is no case for conservative or expectant treatment. The disease can be cured at this stage; later on the plight of the patient becomes hopeless.

The following experience underlies some of these points.

A man, aged 60, was admitted with a diagnosis of multiple hydatid cysts in the lungs. He had always been well until two years before admission, when he had developed a transient pleural effusion in the left chest. He had worked as a steamroller driver all his life; he had always lived at Canterbury. He had never had anything to do with dogs. The fact that a patient states that he has never had anything to do with dogs need not deter one from diagnosing hydatid disease. It is possible that these people are infested by an intermediate host. Vermin for instance may eat food, outside the house, that contains ova, and these can then be brought into the proximity of human beings. The diagnosis of hydatid disease had been made by his doctor, who had observed multiple bilateral opacities in a radiograph of the lungs (Fig. 6) and had had a Casoni reaction done. This test was positive.

On admission the patient was well and he had no abnormal physical signs. The Casoni test was positive; and radiographs showed a number of globular opacities in both lung fields, a calcified opacity in the vicinity of the right atrium, and old pleurisy at the left base.

The most likely diagnosis was considered to be multiple metastatic lesions in the lungs; but no primary tumour could be found. On several previous occasions, patients who have had a positive Casoni reaction, and multiple shadows in the lungs, have been found to be suffering from carcinomatosis and not hydatid disease. The blood count

Fig. 6. This film shows multiple opacities in both lung fields and in the mediastinum.

was normal. A right thoracotomy was done because it was felt that the patient had a primary hydatid in the wall of the right atrium that had leaked into the heart and disseminated secondary cysts to both lungs.

This turned out to be the correct interpretation. The hydatid cyst in the wall of the right atrium had a dense fibrous wall that was calcified and it felt like an egg. This cyst contained clear fluid and hundreds of tiny, intact, daughter cysts, some of which were about the size of a pin's head. When these had been taken out there was no remnant of the germinal membrane to be seen, and at one place the adventitia between the residual space and the cavity of the right atrium was so thin that it was easy to see

Fig. 7. This is a lateral tomograph of the right side of the mediastinum. It shows the calcified hydatid adventitia that was situated in the wall of the right atrial cavity of the heart. The trachea can be seen passing behind the opacity.

how hydatid elements could have got into the blood stream and been disseminated to the lungs. As the cavity had been contaminated it was liberally swabbed with 10 per cent. formalin. Attention was then directed to the right lung and five separate parasites (two of which contained cysts) were taken away.

When the patient returned to the ward he had the physical signs of acute superior vena caval obstruction. This was due presumably to 10 per cent. formalin that had been used to swab out the cavity of the primary cyst. His appearance was wrongly considered, in the first instance, to be due to anaphylaxis; but on taking down the bed clothes the diagnosis was obvious. His face and upper extremities were almost black, and the colour of the lower part of the body was normal. These alarming signs cleared spontaneously after several days and his convalescence was uneventful.

Some months later a left thoracotomy was done in the hope of eradicating the remaining hydatids; it was then found that the distribution of the cysts in the left chest made a surgical cure impossible. There were at least two hydatids in the pericardium; one was about the size of an orange and had insinuated itself amidst the left pulmonary

veins. One smaller cyst was distorting the pulmonary artery. There were several others in the left lower lobe and a large number, about the size of cherries, in the left pleural cavity. He was discharged from hospital in good health.

The primary lesion was the hydatid in the wall of the right atrium. This leaked into the pericardium and into the right atrium. The result was multiple lung and pericardial cysts. As the hydatids in the left pleural cavity were smaller than those in the lungs it was believed that, at the time of the original left pleural effusion, one of the parasites in the left lung must have herniated into the left pleural cavity, and that the others in the heart, the pericardium, and the lungs must have been there at that time.

This patient will die of hydatid disease. He is now fit and well. His history shows that late operation for a complex situation of this type is of no avail. On the other hand we can assume that, if an early diagnosis had been possible, the primary cyst in the wall of the right auricle could have been removed before it had ruptured and disseminated the disease.

Finis

The object of this talk has been to stress that the presence of multiple hydatid cysts in the thorax should set one thinking. Cases of this sort are complicated and difficult to cure.

The treatment of hydatid disease continues to be surgical removal of the parasite before it has undergone unpleasant complications. There is no substitute, or drug, that is efficacious at this time.

BIBLIOGRAPHY

BARRETT, N. R. (1947) *Thorax* **2,** 21.
———— (1949) *Lancet* **2,** 234.
———— (1952) *Brit. J. Surg.* **40,** 222.
CHRISTIE, H. K. (1938) *Austral. New Z. J. Surg.* **8,** 373.
DEW, H. (1928) *Hydatid Disease.* Australian Medical Publishing Co.
DÉVÉ, F. (1946) *L'Echinococcose Secondaire,* Masson.
———— (1949) *L'Echinococcose Primitive,* Masson.
DI BELLO, R. (1956) *An. Fac. Med. Montevideo* **41,** 235.
FINNY, C. (1924) *Brit. med. J.* **2,** 465.
GOODHART, J. F. (1875) *Brit. med. J.* **2,** 685.
LENDON, A. A. (1902) *Hydatid disease of the lung.* London.
LOGAN, A., and NICHOLSON, H. (1948) *Thorax* **3,** 1.
OFFICER BROWN, C. J. (1958) *Postgrad. med. J.* **34,** 195 and 200.
SIMPSON, C. KEITH (1959) Personal communication.

FACULTY OF ANAESTHETISTS

OVER 350 ANAESTHETISTS attended the annual Scientific Meeting of the Faculty in the College on Saturday, 7th May. The subject of the meeting was "Hypoxia" and papers were delivered by Professor E. A. Pask, O.B.E., F.F.A.R.C.S., Squadron Leader J. Ernsting, O.B.E., Dr. J. B. Brierley, Dr. P. D. Bedford, M.R.C.P., and Dr. B. R. J. Simpson, F.F.A.R.C.S. The papers were followed by a panel discussion under the chairmanship of Professor Pask.

THE PREVENTION AND TREATMENT OF ACCIDENTS

by

Sir Harry Platt, Bt., LL.D., M.D., M.S., F.R.C.S.

President, International Federation of Surgical Colleges.
Immediate Past President, Royal College of Surgeons of England

Excerpt from an address delivered in Latin-America (Peru and Colombia) (December 1959) and to the Southport Medical Society (January 1960).

Introduction

The prevention and treatment of accidents is a matter of increasing concern in all advanced or advancing countries. Widespread interest in this problem has been aroused for a number of reasons.

First and foremost is the impact on the public conscience of the rising numbers of the *accidents of road traffic*. This is one of the penalties of the age of the internal combustion engine, and as we enter the second half of the 20th century we face one of the great social and medical problems of our time. The figures which have recently become available are most revealing—(1) in *Great Britain* during the period 1946–1958, there was a steep rise in the numbers of injured on the roads, which by 1958 had reached the total of 293,797. The rise in the number of deaths was less steep—5,970. There has been an obvious relation between the incidence of injuries and the increase in the number of vehicles on the road. In 1946, 3 million vehicles; 1953, 5 million; 1958, 7½ million. In 1958, 22 per cent. of the vehicles involved were motorcycles, scooters, or mopeds.

The August Bank Holiday week-end of 1959 created a new record; and the headlines " Worst Christmas ever on the Roads " in the last week of 1959 are still vivid in our memory—147 killed and 4,504 injured in four days. On Christmas Eve we learned of the heaviest death role ever recorded in one day in Great Britain—66 killed—with 2,176 injured. Can we foresee any material reduction in these figures of dead and injured as with expanding prosperity—" we have never had it so good "—the number of vehicles on roads both old and new increase at an astronomical rate; and that these lethal machines are entrusted to more and more members of that genus miscalled *homo sapiens* from the age of 16 onwards. (2) In the *U.S.A.*, the figures of road accidents are equally shocking. In 1956 there were 40,000 deaths with the proportion of dead to injured 1 : 100.

Our new Minister of Transport, fresh from a first-hand inspection of the traffic problems of the U.S.A., is optimistic that something can be done to stem the slaughter. He has quoted the experience of Chicago, where the

number of cars in that city in 1959 had doubled, but the number of deaths had been reduced by 200. This is apparently due to the strict enforcement of traffic rules and laws—a régime which we must all applaud.

Causes of Accidents

But the accident problem of the nation is not exclusively one of the hazards of modern road traffic. The number of accidents from other causes is also rising. Again I quote figures from the U.S.A., where the deaths due to accidents in individuals between the ages of 1 and 25 are now twice the number of deaths due to the *two* most fatal diseases.

It has been a traditional practice in compiling hospital records in the United Kingdom to classify injuries into three main groups—*Domestic*; *Industrial*; and *Road Traffic*.

(1) In the *Domestic* group fall the accidents of the home and its immediate environment. These are increasing in the adult population and especially in the elderly in accord with the increasing span of life. In the new pattern of full employment, with the large bulk of women at work both married and unmarried, the elderly are often living alone. Such domestic injuries as fractures of the neck of the femur are becoming more frequent, and in frail people the shock which can follow such mishaps is becoming reflected in a higher death rate. Nevertheless, a great many of the elderly, and even very old, are tough enough to survive, and thus the problem of hospitalization, and what may be the long-term occupancy of beds, arises. It is obvious to the medical profession that this and like situations pose social and housing problems of great importance in the future.

Children are also contributing to the increase in numbers of the domestic injuries. They have always been venturesome and falls from heights—from walls or trees—have provided hospital casualty departments with a substantial clientèle for many generations. In the home itself, for young children there are special hazards—falls from a high chair, and the potential tragedies of burns and scalds. It took many years of propaganda before the sale of unguarded electric fires was prohibited by legislation.

The domestic group of injuries has dominated the hospital statistics of major injuries for the past thirty years. This is illustrated by the figures from the Orthopaedic Department of the Manchester Royal Infirmary for the year 1949—a time before the flood of new petrol-driven vehicles had begun to rise steeply.

Fractures and Dislocations	2,926	(2,820 patients)
Major Soft Tissue injuries (i.e. tendon, nerve injuries, etc.)	789	(778 patients)
TOTAL ..	3,715	

Of this total, it will be noted, 2,801 belonged to the *domestic* group (75 per cent.).

Children (under 16)	838
Adults	1,963

The figures for the *Industrial* group were small: 782 (adults only); and for the *Road Traffic* group 253—adults 211; children 42. The figures quoted on the classification of accidents relate to the intake of injuries involving the structures of the locomotor system in a large teaching hospital in a great city. From the same hospital department ten years later (1959), 60 per cent. of the accidents treated occurred in the home.

(2) In the *Industrial* group of injuries in Great Britain as a whole, there is no evidence that the numbers are increasing. Indeed if one is influenced by personal experience of the changing pattern it would be tempting to say that in the *heavy* industries at least the numbers and severity of injuries have shown a decline. Shorter working hours and safety devices enforced by legislation have been important factors in prevention. I think there is no doubt that among the mine workers there has been a marked reduction in the incidence of fractured spines complicated by paraplegia during the past twenty years. The severe spinal injuries of to-day come from the roads.* In the *lighter* industries, many of which are modern developments, the liability to accidents is subjected to similar preventive influences. But the role of *human carelessness* has always to be reckoned with. In the U.S.A. this factor has been calculated to play a dominant part in 70 per cent. of all accidents—wherever they take place.

Changing picture

But in many countries, not least in Great Britian, the picture is changing.

Site of accidents. With the shift of populations to suburbs, to new townships, and the construction of new road systems, the place of occurrence of many accidents is changing from urban to rural areas. In the United States the accidents of *road traffic* are the accidents of the new highways—the "through ways"—and they take their heaviest toll in the age group 20 to 30. In that country accidents of *farming*—now highly mechanized—are responsible for more *occupational* deaths each year than any other major industry. The rural accidents are of course subject to seasonal variations with the peak in the summer months. On the North American Continent the incidence of farming accidents is particularly high in children under ten, and similar hazards are becoming noticeable in Great Britain.

Types of injury. In the last ten years there has been a shift in the pattern of the incidence of the various types of accident. As I have said, in the

* More recent information shows that the accident rate in the building industry has risen (1960).

last generation, the serious and complicated injuries came from the heavy industries—the coalmines and steelworks. To-day, the multiple injuries come from the roads as a result of the exceptional violence involved in such incidents. In the farming accidents, where multiple injuries are also seen, lacerations and division of tendons and nerves tend to dominate the picture.

I have already referred to the special hazards of child life—in the home in all countries; and in the U.S.A. in farming communities. In 1958 W.H.O. published some striking figures obtained from thirteen countries of the Americas which showed that accidents were the chief cause of death in the age group 5-14; and many of the non-fatal accidents led to disablement and crippling. In the U.S.A., 16,000,000 children are the victims of accidents every year, two out of three being boys.

A contemplation of the facts and figures I have quoted emphasizes the need for enquiry into the efficiency of the arrangements for dealing with accidents in all countries where the pace and mechanization of life is a dominant feature of its social and industrial pattern of development.

Evolution of organised accident services in Great Britain

It is—in my judgment at least—always useful to look back into the past, when we are engaged in the task of reviewing the quality and effectiveness of existing medical services. In this way we garner lessons from the experience of our predecessors, for, as Isaac Newton said, we stand on the shoulders of those who have gone before.

Let us recall quite briefly the story of the evolution of accident services in the United Kingdom. It begins with the experience of the first World War (1914–1918)—the first organized efforts at resuscitation; the use of the Thomas's splint on the field of battle (reduction of mortality from 80 per cent. to 20 per cent.); emergency wound surgery in forward units (C.C.S's.); the segregation of major fractures in special base hospitals overseas; and the crowning glory—the creation in the United Kingdom of the military orthopaedic centres under the great master surgeon Robert Jones. The present generation should also from time to time be reminded that, as a young man in the 1890s, Robert Jones had organized the first large-scale accident service during the years of the construction of the Manchester Ship Canal.

The principles of segregation, continuity of treatment, and unity of control, first applied to the treatment of fractures, later extended to a wider range of injuries of the locomotor system, led to the establishment between the two World Wars of orthopaedic-accident services in teaching and non-teaching hospitals, and ultimately to the selection of one institution in the city of Birmingham to function exclusively as an accident hospital. We

note also the launching in 1926 of the Vienna Accident Hospital and the world-wide influence of Lorenz Böhler on fracture techniques. There are now in Austria some thirteen Accident Hospitals and Rehabilitation Centres, all organized by that veteran pioneer.

The advent of the second World War found British surgeons well prepared to apply the peace-time system to an emergency situation more complex than that of 1914–1918. Again the experience gained was two-fold. On the one hand there was the emergency surgery of injuries in forward battle areas with resuscitation techniques now brought to a higher pitch of effectiveness; the more speedy evacuation of the injured by road and air; and the role of special surgical teams in the treatment of head injuries, chest injuries, and injuries of the spine and limbs. From this to the second line of defence—the stage of surgical repair and rehabilitation in the special orthopaedic-fracture centres of the Emergency Medical Service and of the hospitals of the armed forces. In the Korean campaign, fought under the static conditions of trench warfare, the emergency surgery of battle injuries reached a still higher standard of precision, and in this short but epic struggle we must acclaim such surgical feats achieved by our American colleagues as the immediate repair of injuries of larger arteries by grafts from an arterial bank.

During the past ten years—the period of expansion of the consultant services under the National Health Service—many new orthopaedic-accident units have been established in Great Britain and smaller hospital centres serving catchment areas of from 50,000 to 100,000 are almost without exception well equipped not only to deal with the routine day-to-day flow of casualties, but can be mobilized to deal with unexpected major disasters occurring not far from the main hospital of the group. For such emergency situations a prearranged plan of action is of course essential and the experience of a number of recent disasters has led to the organization of such plans in a great many hospital centres. J. C. Scott of Oxford, recalling the Didcot railway disaster, recently stated (*B.M.J.*, 21st June 1958) that the segregated accident services of key hospitals can easily expand and send out flying squads if needed.

In the Harrow and Wealdstone Railway disaster of 8th October 1952, although the injured were taken to four hospitals, one hospital dealt with the majority. To it came 127 people (including 30 dead), of whom 54 were admitted and 43 sent home after first-aid treatment. This hospital had 15 residents and a number of full-time surgical specialists on its staff; three main operating theatres and a casualty theatre were available, and extra beds were found by discharging patients. In this "incident" *lower limb injuries* predominated.

A railway smash in Cheshire in 1948, described recently by Dr. W. A. Leak of Winsford (1956), occurred in the middle of the night. The weather

was fine and the scene of the accident was illuminated by the moon and by the headlights of the cars of the local general practitioners, all of whom had turned out to play their part. The injured were transferred to the local Cottage Hospital. On this occasion, owing to delay in establishing communications, the local Fire Brigade, equipped with flare lighting and rescue apparatus, turned up two hours late. From this experience, Dr. Leak emphasizes the need for planned emergency schemes in rural areas and the value of regular rehearsals.

The *Lewisham train disaster* (4th December 1957) is fresh in our memories—a December night, dense fog, and severe cold. The criticisms which have emerged relate to the speed of action and the amount of equipment available at the scene. It was said that the hospitals were alerted late; that there was a shortage of stretchers, a blocking of telephone communications, and that the medical teams had a scanty supply of dressings and morphine.

In the city of *Manchester* on the evening of Saturday, 21st December 1957, a Corporation bus collided with a car and then toppled over into the basement pit of a burnt-out store, falling a distance of 12 feet and landing on its *left* side. 53 out of the 57 passengers were brought to the Manchester Royal Infirmary, where, after sorting, 23 were admitted. Of these, nine were major injuries, all in *upper deck* passengers. Four of these needed urgent attention after resuscitation—1 ruptured spleen; 1 ruptured kidney; 1 fracture-dislocation of the cervical spine with quadriplegia, and 1 fracture of the femur. There was a predominance of *left-sided injuries*. By chance a block of empty beds was available in one of the wards of the orthopaedic unit so that no extra beds had to be set up. The accident occurred at 7 p.m. and by 11 p.m. all urgent surgical treatment had been completed.

It is from the experience of such major catastrophes that we see how existing organized accident services have been deployed to meet the needs of unexpected emergency situations in cities as well as in rural areas.

Conclusion

The problem of the prevention of accidents is of course primarily a matter of public education and of appropriate legislation. In the field of accident services our profession has a dual responsibility. We have not only to show the way towards the organization of services for the skilled handling of the injured; we have also to take our share in the campaign for prevention. This is part of our public duty as educators in society and as the primary guardians of the public health. In this vital problem our voice should continually be heard in the land—speaking loud and clear.

INTERNATIONAL FEDERATION OF SURGICAL COLLEGES

Second Meeting of Council held in Munich, 15th September 1959

Discussion on Surgical Aid to Countries in Need

THE MEETING OPENED with an address by **Professor J. M. Mackintosh,** who conveyed the greetings of the Director-General of W.H.O. to the Federation. Professor Mackintosh gave a short account of the activities of W.H.O. in the field of surgical missions during the period 1947 to 1958. He pointed out that W.H.O., unlike the International Red Cross, does not act as a relief organization in emergencies. It does, however, at the request of Member States, send medical missions whose main purpose is to demonstrate techniques and exchange ideas with their colleagues in the host countries. Four missions contained surgical teams who gave practical demonstrations in Austria, Poland, Finland, Yugoslavia and Turkey. Six other missions concerned mainly with medical education visited Israel, Iran, India, Burma, Ceylon, Indonesia and Egypt. The members of these missions were drawn from the United States, Canada, Scandinavia, the United Kingdom, Italy and Switzerland. As a result of these visits W.H.O. have been able to help countries most in need of fellowships for the training of young surgeons. 160 Surgical Fellowships were awarded between 1947 and 1958 to nationals of 46 countries—91 of those in Thoracic Surgery. Modern anaesthesia has also received due attention—174 fellowships from 45 countries; and in addition during the past ten years two annual courses of instruction have been held in Copenhagen and Paris; and short visits by consultants have been paid by Consultant Anaesthetists to various European countries—Ceylon, Saudi Arabia, and Jordan. With the emphasis of W.H.O. on the prevention of disease and disability, 222 rehabilitation fellowships have been given to orthopaedic surgeons, nurses, occupational therapists and other workers. In this field of rehabilitation W.H.O. has collaborated with the U.N. Bureau of Social Affairs and the World Veterans Federation of the United States in establishing rehabilitation services. For this purpose consultants have visited Burma, the Philippines, Yugoslavia and Indonesia. Physiotherapy schools have been organized in India, Pakistan and Indonesia.

Professor Carl Semb of Oslo quoted figures to show that a *minority* only of the world's population had access to expert surgical treatment in central (base) hospitals of high standing. There were two categories of assistance to be considered. (1) A short-term plan for help in great disasters. Under such circumstances even advanced countries might find their own resources inadequate. Mobile surgical units comparable to field hospitals should be organized and ready for such emergencies. (2) A long-term plan. This would include surgical missions for short periods (1–3 months), but, more important, the establishment of hospital centres at which visiting

teams would work for long periods. In the first stage of such developments omnicompetent "general surgeons" would be the most useful leaders. Later, the surgical divisions would assume the modern pattern of the grouped major specialties. As examples Professor Semb quoted the hospital established by Albert Schweitzer; a special hospital in Korea for the treatment of tuberculous children organized by the Norwegian-Korean Association and the Scandinavian Teaching Hospital in Seoul, Korea. In this latter medical centre the chiefs of all departments come from Sweden, Denmark and Norway. Professor Semb finally indicated the role of the International Federation of Surgical Colleges in this field—(1) a permanent Council to cooperate with agencies of U.N., W.H.O. and

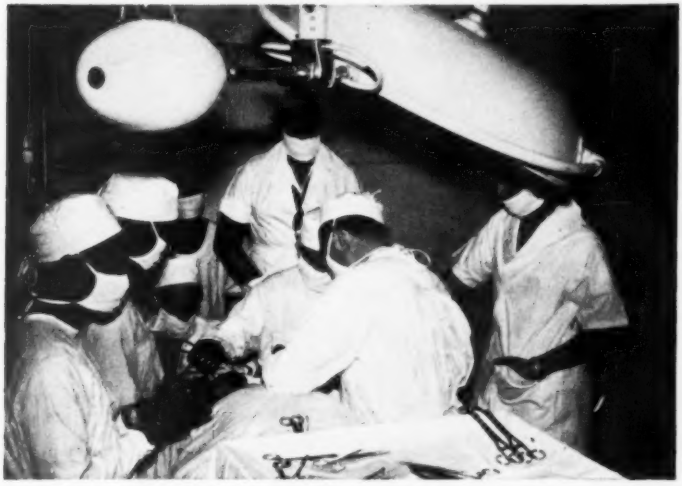


Fig. 1. Operation in progress in the bush.

other bodies such as the League of the Red Cross; (2) the collection of accurate information regarding the needs of underdeveloped countries; (3) the organization of a store of surgical materials as part of the mobile field hospital scheme; and (4) advice on the selection of personnel of all types of surgical units, both short-term and long-term missions.

Mr. H. H. Bentall described the steps which had been taken to make possible the creation of a surgical task force at the Postgraduate Hospital, London, under the direction of Professor Ian Aird, and with the collaboration of Dr. D. G. Melrose. The team contemplated would consist of one to three surgeons, three anaesthetists, three other medical officers; nine nursing sisters, a Quartermaster, and a staff of drivers and cooks.

Several leaders of British industry had been interested in this project, and it was believed that financial aid to cover all the cost of material and transport would be forthcoming when the occasion arose. It was thought that for a major disaster a surgical team would be replaced after a month's work. It was recognized that any such task force would function within the strategic scheme of National and International Red Cross Societies.

Dr. A. Duprez of Brussels gave a full account of the work of two surgical missions sponsored by the University of Brussels, which had established units for the surgical treatment of pulmonary tuberculosis in the Belgian Congo in 1957. These medico-surgical teams which were assembled in Brussels for special training, where the essential equipment was collected, had to be prepared to work at a sanatorium " in the bush ", where the nurses were male Africans, most of them trained locally. It was thus necessary to train a selected number in operation theatre technique (Fig. 1) and in the after-treatment of pulmonary operations.

In two six-week periods of operative attack 50 patients in all were dealt with—25 lobectomies; 10 pneumonectomies; 8 pleuropneumonectomies; and 2 segmental resections. The lesions were often very advanced; some of the lungs removed were pus-filled sponges which had resisted antibiotic therapy. In the first series of 24 patients in 1957 there were 4 postoperative deaths. Nineteen of the survivors followed up one year later were regarded as cured on clinical, radiographic, and bacteriological evidence. One patient who relapsed for ten months reacted well to further conservative treatment.

This story of what Dr. Duprez called an " experiment in pulmonary surgery " showed how an experienced medico-surgical team could function under primitive conditions. In the whole series the operation mortality was related to the extent of the disease. It was inevitably highest in the pneumonectomies carried out for most advanced lesions.

IN MEMORIAM: MR. EDWARD L. LUMLEY

THE COLLEGE HAS suffered a severe loss by the death on 23rd May of Mr. Edward Lumley Lumley, a member of the Court of Patrons and a generous benefactor.

An Australian by birth, Mr. Lumley was head of a firm of City insurance brokers, and was deeply interested in the development of medical links within the Commonwealth. His generous gift in 1953 of £100,000 was devoted in part to the rebuilding of the College, in recognition of which the Great Hall was named after him, and in part to the provision of a Surgical Research Fund in the Royal Australasian College of Surgeons. Mr. Lumley served on the Committee of Management of the Institute of Basic Medical Sciences and on the Appeal Committee, taking a lively interest in College affairs. He was awarded the Honorary Medal in 1957, and was elected to the Court of Patrons in the same year.

IMPERIAL CANCER RESEARCH FUND

Sir Cecil Wakeley in conversation with Miss Diana Wynyard and Mr. W. Arnold Innes before the Annual General Meeting.

THE TWENTY-FIRST Annual General Meeting of the Imperial Cancer Research Fund was held at the Royal College of Surgeons of England on Thursday, 21st April 1960, when, in the absence of the President, the Chairman of Council, Sir Cecil Wakeley, Bt., took the Chair.

Sir Cecil in his report on the year's work said:

" My Lord, Ladies and Gentlemen,

" It is with profound regret that I should, this year, open my address by recording the death of our President, the late Lord Halifax. We remember with a sense of deep personal loss the help and guidance that he brought to the affairs of the Fund throughout the twenty-three years of his Presidency.

" I know, however, that you will share my great pleasure in announcing that the Most Honourable the Marquess of Salisbury has kindly agreed to succeed Lord Halifax. The Fund is indeed most fortunate to find so eminent and distinguished a successor to this high office.

" We had hoped to welcome him here today, but on the advice of his doctors he is taking a much needed holiday during the Parliamentary recess.

" In welcoming you all here this afternoon, I would like to say how pleasant it is to see so many of our friends who give such untiring support to our work. I am particularly glad that so many of our new Life Governors could join us and I look forward to presenting them with their Certificates for special services later this afternoon.

" In the Annual Report in your possession you will find a broad review of the Fund's activities for the past year and an outline of our plans for the future. It has been a year of great activity, change and expansion. Professor Geoffrey Hadfield, Director of the Clinico-Pathological Research Unit, retired from the Fund last August, and the laboratory accommodation at No. 48 Lincoln's Inn Fields and in the Royal College of Surgeons which was previously occupied by this Unit has been divided between the newly formed Division of Chemistry and Biochemistry and the Division of Pathology. The Fund's research laboratories have been reorganized on the basis of four Divisions:

the Division of Chemistry and Biochemistry and the Division of Pathology, both at Lincoln's Inn Fields, and the Division of Experimental Biology and Virology and the Division of Physiology and Endocrinology at Mill Hill. In preparation for the expansion of the Fund's research activities which will be necessary when the new building is ready a number of new members of the scientific staff have been appointed. Notable amongst these is the distinguished Pathologist, Professor R. A. Willis, who is now Consultant Pathologist in the Division of Pathology. Professor Willis and Dr. Currie are establishing a reference collection of tumours which will be of great value to research workers in the Fund's laboratories and also to clinicians, thus even further broadening the Fund's contribution to the problems of human cancer.

"The full account of the Fund's research activities is published in the Annual Report issued today. I would like to draw your attention, however, to two outstandingly important advances this year. Firstly, the work carried out in the Division of Chemistry and Biochemistry in collaboration with Mr. Hedley Atkins, Director of Surgery at Guy's Hospital, which has resulted in a substantial contribution to the treatment of breast cancer in women.

"Secondly, workers in the United States have shown that some spontaneous leukaemias in mice are caused by a virus and this important work raises the possibility that some tumours in man might have a viral aetiology. During the past year, workers in the Division of Experimental Biology and Virology have isolated a Polyoma virus from the mouse colony at Mill Hill. This virus is being studied intensively from various standpoints by members of the Fund's staff and our work in this field is undoubtedly of high distinction.

"Demolition work and the reinforcement and underpinning of the surrounding buildings has been completed on the site for the new laboratories which are now in course of construction in Lincoln's Inn Fields. The total enclosed floor space contained in the three basement floors and eight floors above ground level will be some 120,000 square feet. The building has been designed to take primary account of the laboratory accommodation and to ensure that it is possible to cater for the rapidly changing needs of the research techniques which it will house.

"Externally the concrete frame is to be clad in bronze to give expression to the regularity of the structure. Brick panels are used below the windows and stone cladding at ground floor and sixth floor levels, giving architectural continuity with the adjacent buildings. The character aimed at in the design generally is one of compatibility with the historic buildings of Lincoln's Inn Fields, but nevertheless uncompromisingly modern, as befits a building which is to house the Fund's all-out attack on the most urgent research problem of the century.

"Mr. Dickson Wright, our Treasurer, will tell you something of the financial challenge which lies ahead. The new laboratories will cost £1 million: a quarter as much again to equip, and finally about £500,000 a year to support and maintain our vital work. Formidable though this may seem, I am confident that none of you will fail to appreciate how important it is we should find the means to meet this challenge that is confronting us. Each year has shown a greater awareness of our work. Contributions which ten years ago amounted to £13,000 have risen to nearly £150,000. I firmly believe, therefore, that as the public becomes increasingly aware of our work that this support will continue so that men and women of the highest qualifications, and under the direction of some of the foremost surgeons, physicians and scientists in the world, can steadfastly pursue the one object: to find as quickly as possible the cause and cure of this dread scourge. It brings sorrow and suffering to every home and the answer to it must be found. It is with this faith that we go forward."

The Most Honourable the Marquess of Salisbury, K.G., P.C., F.R.S., was formally elected President, and Mr. Dickson Wright was re-elected Treasurer.

Sir Cecil received cheques amounting in all to £12,310 from Mrs. Ronald Aird, who organized a Bric-à-Brac Sale, Mr. Dennis Watts on behalf of the London Junior Friends of the Fund, Mrs. Marjorie Robinson on

behalf of the National Association of Ladies Circles and Mr. Joe Davis who had once again organized a Christmas Charity Show for the Fund.

Life Governors Certificates for special services were presented to:

Mrs. Ronald Aird

Admiral of the Fleet Sir George Creasy, G.C.B., C.B.E., D.S.O., M.V.O., D.L.

Mr. Clifford Jeapes

Mrs. R. C. S. Levy

Miss Vera Lynn

Sister Margaret Peat

Mr. Dennis Watts.

FACULTY OF DENTAL SURGERY

THE SECOND SCIENTIFIC MEETING OF THE FACULTY will be held in the College on Saturday, 18th June. The subject of the Meeting will be "Hospital Dentistry" and the following papers will be delivered:—

"Dentistry in the treatment of general medical and surgical conditions."

Sir William Kelsey Fry, C.B.E., M.C. (Queen Victoria Hospital, East Grinstead).

"The aetiology and treatment of excessive haemorrhage following dental extraction."

Dr. W. M. Davidson (King's College Hospital).

Mr. C. Wishart (Odstock Hospital, Salisbury).

"The treatment of malignant disease of the face and jaws."

Mr. F. T. Moore, O.B.E. (Queen Victoria Hospital, East Grinstead).

Dr. C. Wood (Hammersmith Hospital).

Mr. W. Bakewell (Frenchay Hospital, Bristol).

The papers will be followed by a Panel Discussion under the Chairmanship of Mr. Terence Ward, M.B.E. (Queen Victoria Hospital, East Grinstead).

All who are interested, whether or not they are Fellows or Licentiates in Dental Surgery, will be welcome to attend. Tickets for refreshments (morning coffee, lunch and afternoon tea) can be obtained from the Secretary of the Faculty, price ten shillings each.

BERNARD JOHNSON MEMORIAL FUND

READERS OF THE *Annals* who knew the late Mr. Bernard Johnson, F.R.C.S., F.F.A.R.C.S., may be interested to know that a memorial fund committee has been set up to collect donations which will be used to commemorate his name in the College.

The Board of the Faculty of Anaesthetists has not yet decided what form this commemoration will take, but it will almost certainly include a memorial plaque in the Department of Anaesthetics and may also be used to endow a Postgraduate Tutorship in Anaesthesia.

Donations will be gratefully received by the Secretary of the Faculty of Anaesthetists.

THE COURT OF PATRONS

Sir Harry Platt, Bt., and Sir Cecil Wakeley, Bt., after their election to the Court of Patrons at a recent meeting.

THE COURT OF PATRONS was instituted in 1956 in order to give the Council additional opportunities of honouring the benefactors of the College.

It can best be described by quoting the Council's resolutions on the subject:

(1) That a Court of Patrons be established, which would consist of individual men and women elected by the Council in recognition of their outstanding services to the College.

(2) That election to the Court of Patrons be made very sparingly and that active interest in the College and encouragement of its affairs rather than acts of benefaction be regarded as grounds for election.

(3) That each member of the Court of Patrons be permitted to wear a special gown and badge, the designs of which shall be approved by the Council.

(4) That a member of the Court of Patrons shall not be entitled thereby to use any descriptive letters after his name.

(5) That no powers or privileges be given to the Court of Patrons which would require an application for further Charter powers.

The robe worn by members of the Court of Patrons is a gown of crimson Russel cord, with the sleeves looped with a gold silk cord and button, and with facings of crimson satin carried round the top of the yoke. This was designed by Messrs. Ede & Ravenscroft, robemakers to the College.

The Patron's Badge

The Patron's badge was designed by Sir John Heaton-Armstrong, M.V.O., Clarenceux King of Arms. It is of silver gilt and enamel and consists of the Arms of the College (without Crest, Supporters or Motto) : it is set in a scalloped border decoration with the word " Patron " below the Arms and the holder's name engraved on the back. The badge is suspended from the wearer's neck by a crimson ribbon.

Some of the Patrons have been formally admitted to the Court at a meeting of the Council. When this is the procedure, the ceremonial is that the Patron, duly robed in his gown, is introduced to the meeting by the Vice-Presidents bearing their staffs of office, and then a citation is

delivered in his honour by a Member of Council. The President then pronounces the words of admission and shakes hands with the Patron, who then makes his acknowledgment. Photographs of this ceremony have appeared from time to time in the *Annals*.

Other Patrons were admitted at a dinner recently given in their honour.

The following are the Patrons so far elected:

Viscount Nuffield, G.B.E., C.H., F.R.S.
Sir Hugh Lett, Bt., K.C.V.O., C.B.E.
Lord Webb-Johnson, G.C.V.O., C.B.E., D.S.O., T.D. (since deceased).
Lady Webb-Johnson.
Sir Edward Baron.
Sir Arthur Sims.
Mr. Edward Lumley (since deceased).
Sir Simon Marks.
Sir Henry Dale, O.M., G.B.E., F.R.S.
Mr. L. J. Williams
Mr. Basil Mavroleon.
Mr. G. A. Vandervell.
Mr. Jack Cotton.
Mr. Harold Samuel.
Sir Cecil Wakeley, Bt., K.B.E., C.B.
Sir Harry Platt, Bt.
Mr. W. Arnold Innes.
Mr. Cecil R. Coleman, C.B.E.
Sir Zachary Cope.

APPOINTMENT OF FELLOWS AND MEMBERS TO CONSULTANT POSTS

D. L. PRYER, F.F.A.R.C.S.	Consultant Anaesthetist to the Torbay Area.
R. R. L. PRYER, F.R.C.S.	Consultant Surgeon to the Aylesbury and High Wycombe Area.
I. SOBER, F.R.C.S.	Surgeon to the Neger Hospital, Beersheba, Israel.
P. R. STEVENS, M.R.C.S.	Consultant Ophthalmologist to the Blackburn and District Group of Hospitals.
A. E. FRANCIS, M.R.C.S.	Bacteriologist to the St. Peter's, St. Paul's and St. Philip's Hospitals.

The Editor is always glad to receive details of new appointments obtained by Fellows and Members, either through the Hospital Boards or direct.

PROCEEDINGS OF THE COUNCIL IN MAY

AT A MEETING of the Council on 12th May 1960, with Professor Sir James Paterson Ross, Bt., President, in the Chair, Dr. Frankis T. Evans, Surgeon Captain J. L. S. Coulter, Dr. E. F. Scowen and Professor E. C. Amoroso were admitted to the Fellowship after election.

The following were appointed Sir Arthur Sims Commonwealth Travelling Professors for 1961:

Mr. Hedley Atkins and Professor T. Cecil Gray, to visit Australia.

Dr. Paul Wood to visit centres in Canada.

The Jacksonian Prize was presented to Mr. Geoffrey Slaney, F.R.C.S.

The Cecil Joll Prize was awarded to Mr. E. E. Dunlop, F.R.C.S., of Melbourne.

The Lady Cade Medal was awarded to Group Captain Ralph Coburn Jackson, M.R.C.S., L.R.C.P.

The Council received with much gratitude a further gift of £20,000 from the League of Friends of the Royal Eye Hospital towards the endowment of the Research Chair in Ophthalmology.

178 Diplomas of Membership were granted.

Begley Prizes were awarded to John Barrett of St. Thomas's Hospital Medical School, R. E. Robinson of St. Mary's Hospital Medical School and G. A. Hunter of University College Hospital Medical School.

One Diploma in Orthodontics was granted.

Diplomas were granted, jointly with the Royal College of Physicians, in the following subjects:

Ophthalmology (1), *Laryngology and Otology* (1), *Tropical Medicine and Hygiene* (1).

The following hospitals were recognized under paragraph 23 of the Fellowship Regulations:

HOSPITALS	POSTS RECOGNIZED		
	General (6 months unless otherwise stated)	Casualty (all 6 months)	Unspecified (all 6 months)
SCUNTHORPE—Scunthorpe and District War Memorial Hospital (additional)	2nd Surg. Reg. 2 H.Ss. (S.H.O.)	Sen. Cas. Off. (S.H.M.O.)	
RHONDDA—Llwynypia Hospital	Reg. S.H.O.		
EPSOM—Epsom District Hospital (additional)	Surg. Reg. *Delete* R.S.O.		Orth. H.S.
BLACKPOOL—Victoria Hospital (additional)	3rd H.O.		S.H.O. (Orth. and Traumatic) *Under para.* 23 (*c*) S.H.O. (E.N.T.)
LONDON—Whittington Hospital (additional)		Cas. Reg.	
LONDON—St. Ann's Hospital, Tottenham (in conjunction with the Prince of Wales Hospital)	2 S.H.Os.		
BARNET—General Hospital (additional)	3rd H.S.		

DONATIONS

DURING THE LAST few weeks the following generous donations have been received:

Appeal Fund—Donations:

£10,000	Simon Marks Charitable Trust
£4,290	Unilever, Ltd.
£500	Bank of England
	Metal Box Co.
£250	Baring Brothers, Ltd.
	Morgan Grenfell & Co., Ltd.
	J. Henry Schröder Co.
£234	Miss J. V. Matthews
£163 5s. 4d.	Yorkshire Insurance Co., Ltd.
£150	Wiggins, Teape & Co., Ltd.
£105	Mr. & Mrs. R. S. Corbett
£100	Lady Holland
	Kleinwort, Sons & Co., Ltd.
	Friends Providential & Century Life
£81 12s. 8d.	Sea Insurance Co., Ltd.
£52 10s. 0d.	W. D. Anthony, Esq.
£10 10s. 0d.	F. W. Clarke, Esq.
£5 5s. 0d.	H. D. Walston, Esq.
	J. Southall (Start-rite) Ltd.
£2	Mr. Waistell

Appeal Fund—Covenants:

£25 p.a. for 7 years + tax	British Acheson Electrodes, Ltd.
£8 3s. 5d. p.a. for 7 years + tax	Bentleys Yorkshire Breweries, Ltd.
£5 p.a. for 7 years + tax	Mrs. B. J. Mason
£5 p.a. for 7 years + tax	J. T. Joris, Esq.
£2 p.a. for 7 years + tax	Dr. J. S. Johnstone

Restoration and Development Fund:

£21 3s. 0d.	*British Journal of Anaesthesia*
£15 15s. 0d.	Dr. B. Cohen, D.D.S.

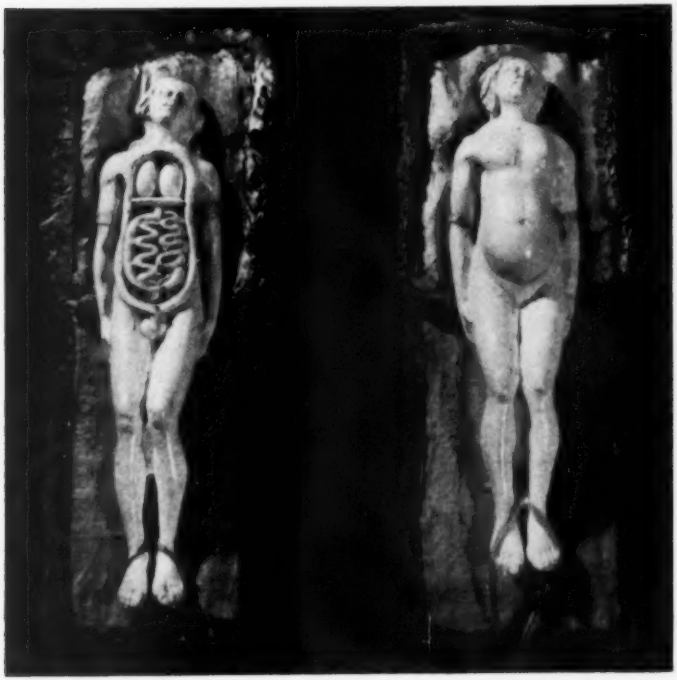
Voluntary annual subscriptions and donations by Fellows and Members:

The following Fellows and Members of the College, Fellows in Dental Surgery, and Fellows in the Faculty of Anaesthetists have generously given donations or have undertaken to make a voluntary annual subscription under Covenant to the College:

Prof. I. Aird, F.R.C.S.
J. C. Barrett, V.C., F.R.C.S.
Sir Ernest Rock Carling
T. E. Cawthorne, F.R.C.S.
Prof. D. Derry, M.C., F.R.C.S.
T. Dinsdale, F.F.A.R.C.S.
A. L. Eyre-Brook, F.R.C.S.
D. B. Fraser, F.R.C.S.
A. J. B. Goldsmith, F.R.C.S.
M. H. Harmer, F.R.C.S.
A. Harsant, C.B., O.B.E., F.R.C.S.
E. T. Heath, F.R.C.S.
A. J. Heriot, F.R.C.S.
E. F. King, F.R.C.S.
N. C. Lake, F.R.C.S.
J. Loewenthal, F.R.C.S.
I. F. K. Muir, F.R.C.S.
W. D. Park, F.R.C.S.
Prof. G. L. Roberts, F.D.S.R.C.S.
I. F. Rose, M.B.E., F.R.C.S.
O. N. Roussel, F.F.A.R.C.S.
E. H. Seward, F.F.A.R.C.S.
F. Sorrell, F.F.A.R.C.S.
J. K. Stanger, F.R.C.S.
J. Straton, F.F.A.R.C.S.
C. E. Sykes, T.D., F.F.A.R.C.S.
S. F. Taylor, F.R.C.S.
G. C. Tressider, F.R.C.S.
O. S. Tubbs, F.R.C.S.
F. F. Waddy, F.F.A.R.C.S.
R. Milnes Walker, F.R.C.S.
D. I. Williams, F.R.C.S.
H. Woodfield-Davies, F.F.A.R.C.S.

"OBSERVABLES" AT THE ROYAL COLLEGE OF SURGEONS

45. Two Anatomical Manikins



THE TWO MANIKINS figured here are Italian carved ivory work of the 17th century. Each is carved in the round, six inches from head to foot, and tied by the arms and feet to an ivory bed upholstered in pink silk. The delicacy of the carving and the contrasted colours of ivory and silk make them very pleasing "observables". The male figure is 16.5 cm. long, and the female is 16 cm.

The surface of thorax and abdomen lifts off in a piece from both the male and the female doll, disclosing models of the viscera. The diagrammatic model of the intestine lies free, but the deeper organs are fixed, except that the ventral surface of the uterus is detachable; probably a carved foetus originally lay within.

Anatomical models such as these are rare and have seldom been described, though familiar to collectors of renaissance art. They are clearly related

to the engraved pictures with lifting flaps, disclosing layer below layer of dissection, which are a frequent feature of early anatomy books. The great Vesalius in 1543 was perhaps the first to devise such layered pictures. These life-like manikins with exposable viscera also recall the complete human figures in living poses, yet with the abdomen opened, which were drawn before Vesalius's time for the anatomy books of Berengario da Carpi or Charles Estienne. They derive indeed from mediaeval drawings, though the carvings are considerably later.

What was the purpose of these carved models? Human anatomy, by the time they were carved in the 1600s, had a century and a half of detailed observation to its credit, while these toys show nothing that could not be better demonstrated in the kitchen. They are too small and diagrammatic for teaching anatomy. Possibly they were designed for the art student, though far less useful to him than the better-known écorchés (sculptured muscle-men). Perhaps they were, from the first, mere curiosities of the carver's skill.

This beautiful pair of manikins was presented to the College in 1939 by C. H. Golding Bird (1848–1939), surgeon to Guy's Hospital, and a member of the College Council 1905–13. They were given to him by a London antique dealer who had been his patient. The manikins were skilfully cleaned and restored at the Victoria and Albert Museum in 1953, and have since then been displayed in the exhibition case outside the President's office. W. R. L.

HOSPITAL MEDICAL STAFFS DEFENCE TRUST

THE HOSPITAL MEDICAL STAFFS DEFENCE TRUST was established in 1950 to provide a fund which could be used to press for fair conditions of service for members of hospital medical staffs. One of the purposes of establishing the Trust was to form a "fighting" fund because other moneys available to hospital medical staffs cannot be used in such a way. Nevertheless, this is only one aspect of the Trust Fund, and in recent years other calls upon it have increased.

The Joint Consultants Committee considered the possibility of raising a voluntary levy from consultants to defray its costs, but because a duplication of appeals to consultants would be confusing and unfortunate the Hospital Medical Staffs Defence Trust agreed to defray the costs of the Joint Consultants Committee, and this offer was accepted.

The main regular expenses met from the Trust Fund are, therefore:

(i) The expenses (travelling and administrative) of the Joint Consultants Committee and the Staff Side of Committee B of the Medical Whitley Council;

(ii) the administrative expenses of the Regional Consultants and Specialists Committees;
(iii) the cost of printing and posting the periodical Bulletin issued by the Central Consultants and Specialists Committee.

Some of the other expenses borne by the Trust in recent years are as follows:

Contribution towards legal action in respect of part-time Consultants and income tax.
Costs of legal action in Northern Ireland concerned with Terms and Conditions of Service.
Cost of legal advice upon the question of entitlement of whole-time medical staff to claim income tax relief in respect of expenses.
Contribution towards cost of preparing remuneration claim for the whole profession.
Expenses of Consultants and Specialists Conferences and Conference of Regional Chairmen and Secretaries.
Expenses of witnesses at various Regional Whitley appeals.

The suggested annual donation to the Trust Fund is £3 for a consultant and £1 10s. for a S.H.M.O. The Joint Committee has been urging the Ministry to allow hospital boards to deduct the amount from the salaries of doctors who desire this method, but this request has so far not met with success. Regular payment may, however, be arranged by completing a banker's order form.

In England and Wales and Northern Ireland approximately 32 per cent. of consultants and S.H.M.Os. at present subscribe to the Trust. In Scotland, where subscriptions to a voluntary level of the Central Consultants and Specialists Committee (Scotland) are collected by deduction at source, there is a much higher percentage of consultants and S.H.M.Os. subscribing, and a contribution from that fund is made to the Trust Fund.

Communications and donations should be sent to the Secretary of the British Medical Association at Tavistock Square, London, W.C.1.

RECENT OVERSEAS VISITORS TO THE COLLEGE

RECENT OVERSEAS VISITORS to the College have included Professor F. E. Stock, Professor of Surgery in the University of Hong Kong; Sayed Nasr El Hag Ali, Vice-Chancellor of the University of Khartoum; Professor Dean Smith, Professor of Physiology in the University of Khartoum, and Mrs. Dean Smith; Mr. A. J. Helfet, F.R.C.S., and Mrs. Helfet from Cape Town; Professor P. K. Duraiswami, Professor of Orthopaedic Surgery in New Delhi; Professor F. R. Magarey, Professor of Pathology in the University of Sydney; and Dr. W. McDermott, Assistant Professor of Surgery at Harvard University, and Mrs. McDermott.

DIARY FOR JUNE

Thur.	16		Pre-Medical Examination, D.L.O., Examination (Part I), and D.P.M. Examination (Part II) begin.
Fri.	17		Course in Anaesthetics ends. Election of Fellows to the Board of Faculty of Dental Surgery.
Wed.	22	5.00	Miss J. Dobson—Arnott Demonstration—A hitherto undescribed section of John Hunter's Museum.
Thur.	23		First Membership Examination and D.L.O. Examination (Part II) begin. British Association of Urological Surgeons Annual Meeting.
Fri.	24		British Association of Urological Surgeons Annual Meeting.
Sat.	25		British Association of Urological Surgeons Annual Meeting.
Tues.	28		Final Membership Examination begins.
Wed.	29	5.00	Board of Faculty of Anaesthetists.

DIARY FOR JULY

Tues.	5		Final F.D.S. Examination begins.
Wed.	6		D.M.R.D. Examination (Part I) and D.M.R.T. Examination (Part I) begin.
Tues.	12		Final F.F.A. Examination.
		5.00	C. G. Robb—The differential incidence of surgical conditions as between Maori and White people.
Wed.	13		Buckston Browne Festival. First L.D.S. Examination, D.O. Examination, and D.T.M. & H. Examination begin.
		3.30	Prof. D. Slome—Bernhard Baron Lecture—Experimental research at the Buckston Browne Farm.
Thur.	14		D.I.H. Examination and D.Phys.Med. Examination (Part I) begin.
		10.30	Quarterly Council. Election of President, Vice-Presidents, and Lecturers. Demonstrations at Buckston Browne Farm (afternoon).
Fri.	15		Board of Faculty of Dental Surgery. Annual General Meeting and election of Licentiate to the Board of Faculty of Dental Surgery.
		4.00	T. Ward—Charles Tomes Lecture—Surgery of the mandibular joint.
Thur.	21		D.Phys.Med. Examination (Part II) begins.
Thur.	28	2.00	Ordinary Council.
		5.00	Prof. E. E. Dunlop—Cecil Joll Lecture—Carcinoma of the oesophagus.
Fri.	29		Basic Sciences Lectures and Demonstrations for Dental Students end.
Sat.	30		College closed.

In pre- and post-operative treatment DULCOLAX effectively replaces the enema

Reporting on the use of Dulcolax in a surgical ward under his charge, Rutter states that 'In 187 consecutive cases of patients submitted to operation, all of whom would normally have been prepared by . . . enema, this proved necessary in no instance.'[1] In another investigation[2] with surgical cases 375 patients were treated with Dulcolax suppositories. Of 120 pre-operative patients 116 had '. . . satisfactory bowel movements within 90 minutes.' In the post-operative group of 200 patients '. . . bowel evacuation occurred in 191 within two hours . . . 112 producing motions within the first 10-30 minutes'. All the patients in this group had received opiates pre-operatively.

The significant results shown in these and many other trials conducted in many parts of the world indicate that Dulcolax is capable of replacing the troublesome enema for any specific medical, surgical or X-ray diagnostic purpose.

[1]Rutter, A. G., *Lancet*, 1959, **i**, 1173.
[2]Ganz, P., and Zindler, N., *Medizinische*, 1955, **29-30**, 1042.

Dulcolax is a non-toxic evacuant. It is not systemically absorbed and induces peristalsis by surface-contact with the mucous lining of the colon. Mild and reliable in action, Dulcolax produces thorough and effortless evacuation without irritant effects or side-reactions. Dulcolax is available both in suppository and tablet form.
It is recommended for use whenever a bowel movement is considered necessary.

DULCOLAX*

(4, 4'-diacetoxy-diphenyl)-(pyridyl-2)-methane

Packed and distributed in the U.K. by Pfizer Ltd., Folkestone, Kent for C. H. BOEHRINGER SOHN, INGELHEIM am RHEIN
Registered proprietors of the Trade Mark.

* *Regd. Trade Mark.*

4123

RIDDOSEDD

TABLETS

A compound of SODIUM-DIETHYLBARBITURATE-PHENACETIN-CODEINE
The ideal HYPNOTIC, SEDATIVE, SOPORIFIC and ANALGESIC

- RIDDOSEDD induces a calm, natural sleep of several hours without any resulting somnolence.
- RIDDOSEDD has no injurious effects upon the heart, circulation, kidneys or respiration.
- RIDDOSEDD is timed to set in when patients awake during the early hours of the morning, thus ensuring a continuation of normal sleep.
- RIDDOSEDD as a soporific is 20 times greater than that of Sodium Diethylbarbiturate.
- RIDDOSEDD has proved to be a most reliable and best tolerated soporific and sedative for more than twenty years.

PACKED IN BOTTLES OF 20 and 100

Please write for details to:

Sole Manufacturers :

RIDDELL PRODUCTS LIMITED

RIDDELL HOUSE, 10-14 DUNBRIDGE STREET, LONDON, E.2

Telephone: SHOreditch 7254. Telegrams: Pneumostat, Beth, London

BRANCH OFFICE: 11 Mansfield Chambers, St. Ann's Sq., Manchester 2

CUNARD—for more than a century a name synonymous with all that is best in ocean travel. Led by the magnificent "Queen" liners, each fitted with two pairs of stabilising fins to smooth your way across the Atlantic, the present Cunard fleet provides a complete passenger service with regular sailings to and from the United States and Canada.

Cunard

Offices and Agents throughout the World.

new, dry non-adherent dressing

Melolin keeps wounds dry, and promotes healing by primary intention. It protects wounds from trauma or infection. Melolin is effective on most types of wound, especially after surgery. It is clean and easy to handle, easily sterilised and economical. Granulation tissue can not grow into the film, and skin exudates are absorbed by the lint *through* the film. Melolin is made of a microporous polyester film bonded to absorbent lint B.P.C. It is non-adherent at all times.

Melolin is available in three sizes, 10 x 10 cms., 10 x 20 cms., and 20 x 30 cms.

melolin

S+N SMITH & NEPHEW LTD., WELWYN GARDEN CITY, HERTFORDSHIRE

Help build this great Cancer Research Centre

The fight against cancer—mankind's cruellest enemy—is being intensified. The Imperial Cancer Research Fund seeks your help in building new laboratories in Lincoln's Inn Fields. Due to open next year, this will be the most advanced research centre in Europe. But £1,000,000 is needed to complete it.

The Imperial Cancer Research Fund, pioneer organisation of its kind, was founded by the Royal Colleges of Physicians and Surgeons to undertake this vital work in its own Laboratories.

To widen its activities and to speed results, the Fund—which receives no official grant—makes this *personal* appeal to you. Will you please help—*now*?

IMPERIAL CANCER RESEARCH FUND

PATRON: HER MAJESTY THE QUEEN

Please send your gift to **A. Dickson-Wright, Esq.,** M.S., F.R.C.S.
Royal College of Surgeons, 94, C.R.F. Lincoln's Inn Fields, London, W.C.2

a time for relaxation...

A short time or a long time for muscular relaxation ? B.W. & Co. provide a product for each need :

'ANECTINE' BRAND **Injection of Succinylcholine Chloride**

The first choice for procedures requiring rapid muscular relaxation of brief duration.

'TUBARINE' BRAND **Preparations of Tubocurarine Chloride**

The most widely-used muscle relaxant ; unsurpassed for prolonged procedures, and where profound relaxation is required.

B.W. & CO. Muscle Relaxants

BURROUGHS WELLCOME & CO. (The Wellcome Foundation Ltd.) **LONDON**

Fitting Tribute

Finished socket for a VESSA artificial leg. Sockets are hand-beaten from sheet Alclad, fitted, rimmed and then assembled with rest of leg.

Craftsman-made VESSA artificial legs are designed and built to individual measurements from only the finest materials. Joints and components are manufactured to meet Ministry of Health requirements.

The real test of an artificial leg is, however, in the fitting, and the thousands of amputees who wear VESSA legs with absolute comfort are a tribute to our pre-eminence in this field.

VESSA have also been responsible for many prosthetic design developments, particularly the development of the metal suction socket which eliminates the need for the conventional pelvic band and swivel joint attachment.

A comprehensive refit and repair service is available, and very speedy attention is given to this work.

Please write for complete details of models designed for Above-knee, Below-knee, Through-hip, Syme's operation, and for growing children.

VESSA LIMITED Artificial legs and Orthopaedic appliances

VESSA LIMITED

Works: PAPER MILL LANE, ALTON, HANTS.
Registered Office: Henley Park, Guildford, Surrey.
Tel.: Guildford 62861

London Fitting Rooms:
Queen Mary's Hospital, Rochampton
A member of the VOKES Group.

Known the world over
for a comprehensive and reliable
Insurance Service

LIFE · PENSIONS · FIRE
ACCIDENT · MARINE

LEGAL & GENERAL

ASSURANCE SOCIETY LIMITED

CHIEF ADMINISTRATION · 188 FLEET STREET · LONDON EC4

Additions to the range of

PARAGON
scalpel handles and blades

BLADES IN PACKETS OF 6
HANDLES PACKED SINGLY

Obtainable from all the leading Supply Houses.

Sole Manufacturers: THE PARAGON RAZOR CO., SHEFFIELD, ENGLAND

Fitting Tribute

Finished socket for a VESSA artificial leg. Sockets are hand-beaten from sheet Alclad, fitted, rimmed and then assembled with rest of leg.

Craftsman-made VESSA artificial legs are designed and built to individual measurements from only the finest materials. Joints and components are manufactured to meet Ministry of Health requirements.

The real test of an artificial leg is, however, in the fitting, and the thousands of amputees who wear VESSA legs with absolute comfort are a tribute to our pre-eminence in this field.

VESSA have also been responsible for many prosthetic design developments, particularly the development of the metal suction socket which eliminates the need for the conventional pelvic band and swivel joint attachment.

A comprehensive refit and repair service is available, and very speedy attention is given to this work.

Please write for complete details of models designed for Above-knee, Below-knee, Through-hip, Syme's operation, and for growing children.

VESSA Artificial legs and Orthopaedic appliances LIMITED

VESSA LIMITED

Works: PAPER MILL LANE, ALTON, HANTS.
Registered Office: Henley Park, Guildford, Surrey.
Tel.: Guildford 62861

London Fitting Rooms: Queen Mary's Hospital, Roehampton
A member of the VOKES Group.

Known the world over for a comprehensive and reliable Insurance Service

LIFE · PENSIONS · FIRE
ACCIDENT · MARINE

LEGAL & GENERAL

ASSURANCE SOCIETY LIMITED

CHIEF ADMINISTRATION · 188 FLEET STREET · LONDON EC4

Additions to the range of

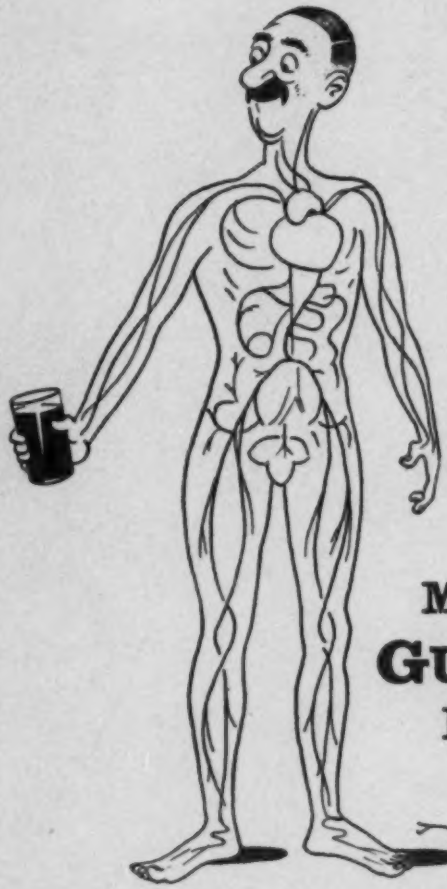
PARAGON
scalpel handles and blades

BLADES IN PACKETS OF 6
HANDLES PACKED SINGLY

Obtainable from all the leading Supply Houses.

Sole Manufacturers: THE PARAGON RAZOR CO., SHEFFIELD, ENGLAND

MAN



– usually referred to as Homo Sapiens because he has the good sense to enjoy over

FIVE MILLION GUINNESS EVERY DAY

G.E.3307.B

Printed by Jackson, Ruston & Keeson, Ltd., Pear Tree Court, London, E.C.1, England.